

21

Family Alepocephalidae

Body elongated, compressed. Mouth moderate or large, upper edge composed of maxillaries and premaxillaries, latter placed along front and lower edge of former. Maxillary with posterior supplemental bone. Barbels none. Teeth feeble, on premaxillaries and mandible, sometimes on maxillaries and mostly on palatines. Nostrils close to eye. Opercles complete, very thin. Gill opening very wide, partly covered by continuation of skin of head and by gill membranes, which free from isthmus and overlapping each other. Gill rakers long, numerous. Pseudobranchiae present. Head mostly

22

naked. Scales thin, cycloid, at least
in lateral line. No adipose dorsal.
Anal more or less below dorsal.
Pectoral rather high. Ventral nearly
median, sometimes absent. Vent
behind middle of body.

Deep sea fishes of similar
fundamental structure to the
Clupeidae and Salmonidae,
but without the postclavicle
or an adipose fin, and both
dorsal and anal posterior or
opposed. The skeleton is
feebly ossified and the air
bladder absent.

Leurogobius Bleeker, placed
with this family by Jordan, seems
more correctly related to the
Ophidiidae, with which it was
associated in its description.

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

There is less uncertainty.
regarding the habitat of this
family than in respect to that of
some of the others. Structure, blackness
of integument, food, and the condition
of the specimens on-arrival at the
surface all favor the conclusion that
these fishes dwell close to the bottom,
hundreds of fathoms below the
surface. The large eye is a
distinguishing feature of the
Aleprocephalidae and its possession
must be regarded as proof of the

24

presence of light either in the
bodies of the other inhabitants of
the sea bottom, fellows, enemies, prey,
etc., or in the medium in which
the family lives, one or the other or
both. In the absence of luminous
organs, except, it may be in
Xenodermichthys, the principal
dependence for recognition of others of
the same species at a distance,
probably lies in ability to recognize
similarities and differences in form,
outlines, positions of fins, and the like,

25

and these are made visible by the luminosity of the integuments of the object or by the light in the water around it, presumptively by both of them. The surfaces of these fishes are more or less phosphorescent, but aside from this it would appear that the large eye, with the lack of special light organs and of special developments of the organs of touch, should be taken as evidence that the Alepocephalidae, and similar fishes, dwell in water

that is lighted, perhaps by
chemical changes taking place in
the ooze on the ocean floor, changes
that may at once cause the phosphorescence,
retard the waste of tissues, and
possibly add something to the
supply of oxygen. (Garman.)

Esunculus Kaup, called by
Jordan "a larva, allied to
Alepocephalus" surely approaches
the early larval stage of Albula.
Tauredophidium Halcock, placed
with this family by Jordan, seems
more correctly related to the
ophidiids, with which it was
associated by its describer.

28

Analysis of genera

a.' Ventral origin median in body without caudal, or nearly so.

b.' Alepocephalinae. Snout short or moderate.

c.' Body covered with scales.

d.' Ventrals present.

e.' Maxillaries toothless; branchiostegals usually 6.

f.' Head moderate, 3 or more in body without caudal.

g.' Premaxillaries not greatly expanded or ensheathing mandible; dorsal and anal opposed.

h.' Jaws even, or nearly so. Alepocephalus
h.² Snout well protruded, in slender point before mandible. Halisauriceps

29

g.² Premaxillaries greatly expanded,
ensheath mandible.

i.¹ Maxillary not extending behind
eye; dorsal origin behind anal
origin. Xenognathus

i.² Maxillary extends well beyond
eye; dorsal advanced from
anal. Leptoichthys

f.² Head very large, long as rest of
body without caudal. Asquamiceps

e.² Maxillaries with teeth; branchiostegals 7.

f.¹ Body elongate.

k.¹ Upper teeth uniserial. Bathytroctes

k.² Several series of teeth on
premaxillaries, maxillary teeth
uniserial. Pharcetes

j.¹ Body short and deep; teeth
uniserial. Platytröctegen

d.² Ventrals absent; body short and deep; branchiostegals 6. Platytroctes

c.² Body scaleless, though sometimes small nodules present.

l.¹ Maxillary not extended beyond eye; no median cutaneous fold on predorsal.

m.¹ Dorsal and anal subequal, well separated from well developed caudal; eyes moderate.

n.¹ D. 15 to 21; A. 14 to 19. Rouleina

n.² D. 25 to 30; A. 28 to 34.

Xenodermichthys

m.² Dorsal much shorter than anal, which more than half length of fish; caudal peduncle and caudal fin very small; eyes large. Leptoderma

3/
l.² Maxillary reaches well
beyond eye; high median
cutaneous predorsal fold.
Anomalopterus

b.² Aulastomatomorphinae. Snout long,
tube-like, with small terminal
mouth; scales minute, scarcely
imbricate. Aulastomatomorpha

a.² Dolicopteryginae. Ventral origin well
postmedian; eyes telescopic; pectoral
very long. Dolicopteryx

Genus Alepocephalus Risso

Alepocephalus Risso, mém. Acad.

Royale de Turin, vol. 25, 1820, p. 270.

Type Alepocephalus rostratus Risso,
monotypic.

→ Mitchillina Jordan and Evermann,

Bull. U. S. Nat. Mus., No. 47, pt. 1, 1896,

p. 453. Type Alepocephalus bairdii

Goode and Bean, monotypic.

Canocara Goode and Bean, Oceanic

Ichth., 1895, p. 39. Type Canocara

mcdonaldi Goode and Bean, designated

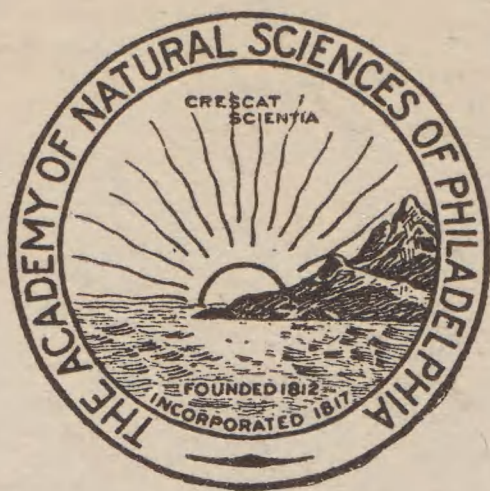
by Jordan, Genera of Fishes, pt. 4,

1920, p. 467.

Benthosphyraena Cockerell, Bull. U. S.
Geolog. Surv., 1918 (1919), p. 172. Type

Alepocephalus macropterus Vaillant.

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

Ericara Gill and Townsend,
 Proc. Biol. Soc. Washington, vol. 11,
 Sep. 17, 1897, p. 232. Type Ericara
salmonia Gill and Townsend,
 monotypic.

~~Ericara salmonia Gill and Townsend.~~

~~Ericara salmonia Gill and Townsend,
 Proc. Biol. Soc. Washington, vol. 11, Sep.
 17, 1897, p. 232.~~

Pseudochromis moorei new species

Depth 3 to $3\frac{1}{3}$; head 3 to $3\frac{1}{4}$, width 2 to $2\frac{1}{4}$. Snout $4\frac{1}{2}$ to $4\frac{4}{5}$ in head from snout tip; eye 4 to $4\frac{1}{2}$, greater than snout in young to subequal with age, greater than interorbital; maxillary reaches $\frac{1}{4}$ to $\frac{1}{3}$ in eye, expansion $1\frac{7}{8}$ to 2 in eye, length $2\frac{1}{2}$ to $2\frac{2}{3}$ in head from snout tip; teeth uniserial in jaws, strong, conic, 4 large canines in front of each, median upper smallest pair and much closer than 2 median lower which next in size; small curved band of fine teeth on vomer, also small patch on front of each palatine, tongue toothless; interorbital $6\frac{1}{5}$, little convex; upper hind opercle edge with 5 flattened spines. Gill rakers $6+12$, clavate, $\frac{3}{4}$ of gill filament, which $2\frac{1}{4}$ in eye.

Body moderately elongate, compressed, with moderate or short caudal peduncle. Head moderate, $2\frac{3}{4}$ to 4. Snout moderate. Eye large. Jaws nearly even in front. Series of small teeth on premaxillaries, mandibles and palatines and sometimes on vomer. Opercles large, thin. Gill openings wide, covered partly by entirely separate and overlapping gill membranes and by continuation of skin of head. Gill rakers numerous, close set, rather long. Pseudobranchiae present. Branchiostegals 6. Head naked. Scales fine to large, cycloid, deciduous. Fin bases scaly. Lateral line complete, scales tubular. Dorsal and anal posterior, opposite or nearly so. Caudal forked. Paired fins well developed, rather small.

Bathypelagic, mostly in tropical seas. Following Norman with the inclusion of Canocara, Mitchillina and Benthosphyraena, a very wide range of variation in squamation is found in the present assemblage. It also follows Ericara, based on a large unique example and without any very definite external characters, should also be admitted.

Analysis of species

a.¹ Alepocephalus. Scales moderately small, 50 to 58 in lateral line.

b.¹ Maxillary reaches within eye but not to eye center.

c.¹ A. 22 or 23.

d.¹ D. 15 to 18; orbit $3\frac{1}{4}$ to $3\frac{1}{2}$ in head rostratus.

d.² D. 20; orbit $3\frac{3}{4}$ to $3\frac{4}{5}$ in head.

c.² A. 17; D. 16; orbit $3\frac{1}{4}$ to $3\frac{4}{5}$ in head. giardi.

e.¹ D. 16 or 17; A. 17 to 19; eye $3\frac{2}{5}$ asperifrons

e.² D. 17; A. 20; eye $3\frac{2}{5}$. macrops

e.³ D. 18; A. 18; eye $3\frac{1}{2}$. barnardi.

e.⁴ D. 29; A. 35; eye $5\frac{1}{10}$. edentulus.

a.² Mitchellina. Scales small, 60 to 75 in lateral line; maxillary reaches eye or to its center.

Analysis of species

a.¹ Alepocephalus. Scales moderately small, 50 to 58 in lateral line.

b.¹ Maxillary reaches within eye but not to eye center.

c.¹ A. 22 or 23.

d.¹ D. 15 to 18; orbit $3\frac{1}{4}$ to $3\frac{1}{2}$ in head
rostratus.

d.² D. 20; orbit $3\frac{3}{4}$ to $3\frac{4}{5}$ in head.

c.² A. 17; D. 16; orbit $3\frac{1}{4}$ to $3\frac{4}{5}$ in head.
giardi.
andersoni.

b.² Maxillary reaches at least to eye center or slightly beyond.

e.³ D. 18; A. 18; eye $3\frac{1}{2}$. barnardi.

e.⁴ D. 29; A. 35; eye $5\frac{1}{10}$. edentulus.

a.² Mitchellina. Scales small, 60 to 75 in lateral line; maxillary reaches eye or to its center.

~~Genus~~ Ericara Gill and Townsend ^{= Alpeyfish}

Ericara Gill and Townsend, Proc. Biology,
Soc. Washington, vol. 11, 1897, p. 232. ⁴ type
Sep. 17,

Ericara salmonica Gill and Townsend,

f. ¹ D. 16 or 17; A. 17.

g. ¹ Maxillary $\frac{1}{5}$ in eye. blanfordi.

g. ² Maxillary $\frac{1}{3}$ in eye. productus.

g. ³ Maxillary $\frac{1}{2}$ in eye. umbriceps.

f. ² D. 20 to 22; A. 25 to 27.

h. ¹ Maxillary $\frac{1}{8}$ to $\frac{1}{4}$ in eye;
lower gill rakers 15. bicolor.

h. ² Maxillary $\frac{1}{2}$ in eye; lower
gill rakers 22. bairdii.

a. ³ Ericara. Scales smaller, 80 to 110
in lateral line.

i. ¹ Scales 80 to 90.

j. ¹ Maxillary $\frac{2}{3}$ to $\frac{3}{4}$ ⁱⁿ eye;

D. 17 to 19; eye 5 to 6 in head.

agassizii.

j. ² Maxillary reaches eye;

k. ¹ D. 16 to 18; A. 17 to 19; eye $4\frac{1}{2}$
to $5\frac{1}{5}$ in head.

k. ² Pectoral longer than snout.

m. ¹ Dorsal origin slightly before
anal origin. tenebrosus

m. ² Dorsal origin opposite anal
origin. convexifrons

head from snout tip; eye $3/5$, greater
than snout; maxillary reaches $2/5$ in
eye, expansion $1/2$ of eye, length 2
in head from snout tip; teeth very
small, pointed, biserial, inner row
somewhat longer than outer; interorbital
low. Scales 70 (figure shows 78 in
lateral line to caudal base and 4
more on latter), 5 above (figure shows

38

l.² Pectoral less than snout;
dorsal origin slightly
before anal origin.

h.² D. 24; A. 31 to 35; eye $5\frac{1}{8}$
to $6\frac{1}{2}$ in head. frondulus
microlepis

i.² Scales 108; D. 17; A. 24; eye 7
in head. salmonensis

a.⁴ Whitleyidea new subgenus. Scales
very small, 140 in lateral line; D.
21, inserted behind anal origin; A.
27; maxillary reaches eye. niger.

a.⁵ Conocara. Scales minute, 190 to 216
in lateral line; D. 20, inserted well
behind anal origin; A. 36 or 37.

m.¹ Lower gill rakers 17.

m.² Lower gill rakers 14. macropterus
mcdonaldii

Subgenus Eleporephalus Risso

$3\frac{1}{5}$ to $3\frac{2}{5}$, little greater than
snout, equals interorbital; maxillary
reaches $\frac{1}{2}$ in eye, expansion 3 in
eye, length $1\frac{3}{5}$ in head from
snout tip; upper teeth uniserial,
with close set median pair of small
~~curved~~ canines and small lateral one
each side; similar dentition in
lower jaw; ~~only with lateral canine~~
~~curved~~; row of very small close
set teeth on maxillary; interorbital
 $3\frac{1}{2}$ to $3\frac{2}{3}$

Alepocephalus rostratus Risso

- Alepocephalus rostratus Risso, Mem.
Acad. Sci. Torino, vol. 25, 1820, p. 291,
pl. 10, fig. 4. Nice; Hist. nat. Eur.
Mér. id., vol. 3, 1826, p. 449, pl. 11, fig. 28
(Nice). — Swainson, Nat. Hist. Animals,
vol. 2, 1839, p. 298 (reference). — Valenciennes,
Hist. nat. Poiss., vol. 19, 1846, p. 172, pl. 566
(Nice). — Johnson, Ann. Mag. Nat. Hist.,
London, ser. 3, vol. 10, 1862, p. 285 (Madeira).
— Günther, Cat. Fishes Brit. Mus., vol. 7,
1868, p. 477 (no locality). — Moreau, Hist.
nat. Poiss. France, vol. 3, 1881, p. 463. —
— Giglioli, Elenco nat. pesci italiani,
1880, p. 106. — Günther, Rep. Voy. Challenger,

vol. 22, 1887, p. 223 (Mediterranean).

— Vaillant, Expéd. Sci. Travailleur et
Talisman, Poiss., 1888, p. 148, pl. 11, figs.

1, a-d, pl. 12, fig. 5 (coast of Morocco, 8346
2190 meters; Canaries, 975 meters; coasts of
Soudan, 830 to 932 meters; Banc d'Arguin,

1113 to 2330 meters; Cape Verde, 3655 meters;

Azores, 2235 meters). — Goode and Bean,

Oceanic Ichth., 1895, p. 36, pl. 12, fig. 41

(compiled).

Bathytroctes attritus Vaillant, Expéd.
Sci. Travailleur et Talisman, Poiss.,
1888, p. 158, pl. 12, figs. 2, a-c (structure).

Banc d'Arguin, 1550 meters; Cape Verde,
3655 meters; Azores, 1442 meters. V. Réis.

— Goode and Bean, Oceanic Ichth., 1895,
p. 45 (reference). — Vaillant,

south east of Azores).

Depth $5\frac{1}{5}$ to $5\frac{2}{3}$; head 3 to $3\frac{1}{6}$,
width $2\frac{2}{3}$ to $2\frac{7}{8}$. Snout $4\frac{2}{5}$ to
 $4\frac{1}{2}$ in head as measured from eye;
orbit $3\frac{1}{4}$ to $3\frac{1}{2}$; eye $3\frac{3}{4}$ to $4\frac{2}{3}$,
equals snout, greater than interorbital;
maxillary reaches $\frac{1}{3}$ to $\frac{2}{5}$ in eye,
expansion 2 to $2\frac{3}{4}$ in eye, length

Bathytroctes attritus Vaillant, Expéd.
Sci. Travailleur et Talisman, Poiss.,
1888, p. 158, pl. 12, figs. 2, a-c (structure).
Banc d'Arguin, 1550 meters; Cape Verde,
3655 meters; Azores, 1442 meters. Rés.
Camp. Sci. Monaco, vol. 52, 1919, p. 129
(N. $37^{\circ}28'30''$ W. $25^{\circ}31'45''$, 1732 meters,
south east of Azores).

Depth $5\frac{1}{5}$ to $5\frac{2}{3}$; head 3 to $3\frac{1}{6}$,
width $2\frac{2}{3}$ to $2\frac{7}{8}$. Snout $4\frac{2}{5}$ to
 $4\frac{1}{2}$ in head as measured from eye;
orbit $3\frac{1}{4}$ to $3\frac{1}{2}$; eye $3\frac{3}{4}$ to $4\frac{2}{3}$,
equals snout, greater than interorbital;
maxillary reaches $\frac{1}{3}$ to $\frac{2}{5}$ in eye,
expansion 2 to $2\frac{3}{4}$ in eye, length

(43)

3 in head; interorbital 6 to $7\frac{2}{5}$, low, broadly concave. Gill rakers $8 + 19$, lanceolate, $2\frac{2}{5}$ in eye; gill filaments $\frac{3}{5}$ gill rakers.

Scales 52 in lateral line to caudal base; 7 above, 10 below, 40 predorsal. Bases of vertical fins scaly. Scales finely adherent, in even longitudinal series, smaller on fin bases. Scales with 17 or 18 weak radiating basal striae; circuli very fine, largely longitudinal and parallel.

d. v, 10, i to v, 13, i, third branched ray $2\frac{7}{8}$ to $3\frac{3}{5}$ in head; a. v, 17, i,

44

third branched ray $2\frac{7}{8}?$ to $3?$;
caudal $1\frac{3}{4}$ to $2?$, well forked,
about 10 inconspicuous rudimentary
ray above or below; least depth of
caudal peduncle 4 to $4\frac{1}{4}$; pectoral
 $2\frac{1}{4}$ to $2\frac{2}{3}$; ventral 3 to $3\frac{2}{5}$.

Head deep neutral black.

Iris dark gray, pupil brownish
white. Inside mouth and gill opening
black. Body dark livid gray or
neutral gray, each of ~~each~~ scale
exposures narrowly much darker to
neutral dusky. Fins blackish brown.
Where scales have fallen skin
dark brown.

Eastern Atlantic and Mediterranean

40048 U.S.N.M. Rice. Royal
Zoological Museum Florence. Length
295 mm.

49332 U.S.N.M. Rice. Dr. C.
Bellotti. Length 347 mm.

Alepocephalus giardi Köhler

Alepocephalus giardi Köhler, 1912, p. 394, fig. 262

N. $45^{\circ}57'$ W. $6^{\circ}21'$, 1410 meters; N. $44^{\circ}39'$ W. $4^{\circ}39'$, 800 meters,

✓ Gulf of Gascogne. — Tyler, Depth of the

Ocean, 1912, p. 394, fig. 262 (Faroe-Shetland Channel; Faroe Bank, 750 to 840 meters).

Depth $4\frac{4}{5}$; head 3. Snout $4\frac{1}{6}$ in head; eye $3\frac{3}{4}$, slightly greater than snout, less than interorbital; maxillary reaches $\frac{3}{7}$ in eye, expansion $2\frac{7}{8}$ in eye, length 3 in head; lower jaw shorter than upper; interorbital low.

Along lateral line 54 muscular impressions to caudal base; 9 above, 6 below. Scales not described.

Alepocephalus giardi Köhler

Alepocephalus giardi Köhler, Ann.

Univ. Lyon, vol. 26, 1896, p. 513, pl. 26, fig. 1.

~~##~~ Gulf of Gascony. — ^{Murray and} Hjort, Depths of the Ocean, 1912, p. 394, fig. 262 (Faroe-Shetland Channel; Faroe Bank, 750 to 840 meters).

Depth $4\frac{4}{5}$; head 3. Snout $4\frac{1}{6}$ in head; eye $3\frac{3}{4}$, slightly greater than snout, less than interorbital; maxillary reaches $\frac{3}{7}$ in eye, expansion $2\frac{7}{8}$ in eye, length 3 in head; lower jaw shorter than upper; interorbital low.

Along lateral line 54 muscular impressions to caudal base; 9 above, 6 below. Scales not described.

D. 20, fin height $4\frac{7}{8}$ in head, origin slightly behind anal origin; A. 23, fin height $4\frac{2}{3}$; caudal $2\frac{1}{8}$, emarginate, lobes rounded and 15 rudimentary rays extend well forward; least depth of caudal peduncle $4\frac{1}{4}$; pectoral $2\frac{1}{10}$, reaches ventral base; ventral $3\frac{2}{5}$.

Grayish. Head below, mouth, gill membranes and gill opening blackish. Length 320 mm. (Kochler.)

Atlantic Ocean.

Alepocephalus andersoni new species

Depth 5 to $6\frac{1}{5}$; head 3 to $3\frac{1}{8}$, width $2\frac{3}{5}$ to $2\frac{7}{8}$. Snout 4 to $4\frac{2}{5}$ in head from snout tip to eye, upper profile slightly concave; orbit $3\frac{1}{4}$ to $3\frac{4}{5}$; eye 4 to $4\frac{3}{4}$, subequal with snout, slightly greater than interorbital; maxillary reaches $\frac{1}{8}$ to $\frac{1}{5}$ in eye, expansion $2\frac{2}{5}$ to $2\frac{4}{5}$ in eye, length $3\frac{1}{8}$ to $3\frac{1}{3}$ in head; interorbital 5 to 6, nearly level; opercle with 4 or 5 distinct radiating striae below, not strongly developed. Gill rakers $11 + 20$, lanceolate, $1\frac{3}{5}$ in eye; gill filaments $\frac{2}{3}$ of gill rakers.

49

Scales 53 or 54 in lateral line to caudal base and 4 more on latter; 7 above, 7 below, 32 predorsal forward to occiput. Cranium largely scaly, rest of head naked. Greater portions of bases of vertical fins scaly. Scales with 3 radiating basal striae; circuli very fine.

D. VI, 10, I, first branched ray $2\frac{3}{4}$ in head, fin origin midway between hind gill opening and caudal base; A. V, 12, I, first branched ray $2\frac{3}{4}$, fin origin below middle of dorsal; caudal $1\frac{4}{5}$, forked; least depth of caudal peduncle $3\frac{7}{8}$; pectoral $1\frac{2}{3}$ to

$1\frac{3}{4}$, reaches ventral; ventral $2\frac{4}{5}$, reaches half way to anal.

Head blackish brown. Iris neutral dusky with dark golden shade pupil ivory yellowish. Body dark brown. Lateral line with blackish tubes. Fins all dark brown, paired ones blackish.

Diagnosis. Apparently differs in its ventrals which are inserted very slightly nearer caudal base than eye and fin reaching but half way to anal origin. In both Alepocephalus bicolor and Alepocephalus blanfordi as figured by Alcock, the ventrals are more posterior and reach well

over half their distance to the anal.
Alepocephalus blanfordi has
 smaller and finer scales and a
 still narrower interorbital.

Type no. U. S. N. M.

10211. D. 5527. Balicasag Island
 (C.), N. 14° W., 8.2 miles (N. $9^{\circ}22'30''$ E.
 $123^{\circ}42'40''$), between Siquijor and Bohol.

In 392 fathoms. August 11, 1909. Length
 253 mm. Type.

4758. D. 5123. Malabrigo Light, N.
 44° W., 32.50 miles (N. $13^{\circ}12'45''$ E. $121^{\circ}38'$
 $45''$), east coast of Mindoro. In 283
 fathoms. February 2, 1908. Length 230
 mm.

Alepocephalus asperifrons Garman

Alepocephalus asperifrons Garman,

Mem. Mus. Comp. Zool., vol. 24, 1899,

p. 291, pl. 59, fig. 1. N. $6^{\circ}35'$ W. $81^{\circ}44'$,

782 fathoms; N. $7^{\circ}15'$ W. $79^{\circ}36'$, 1020 fathoms,
Gulf of Panama.

Depth 5; head $2\frac{4}{5}$. Snout to eye
 $3\frac{2}{5}$ in head; orbit $4\frac{1}{3}$; eye 6, $1\frac{3}{4}$
in snout; maxillary reaches $\frac{3}{5}$ in
eye, expansion $1\frac{2}{3}$ in eye, length
 $2\frac{3}{5}$ in head; teeth small, slender,
acicular, uniserial on premaxillaries,
dentaries and palatines; interorbital
concave.

53

Scales 56 to 58 in lateral line;
6 above, 7 below.

D. 16 or 17, fin base $2\frac{7}{8}$ in head,
origin opposite anal origin; A. 17 to
19, fin base $2\frac{2}{5}$; caudal damaged,
^{evidently} deeply emarginate; least depth of
caudal peduncle $4\frac{3}{4}$; pectoral fins
damaged, evidently small.

Surface and internal linings
deep black. Length 305 mm. (Garman.)

Gulf of Panama.

Alepocephalus macrops Lloyd
Alepocephalus macrops Lloyd, Mem.

Indian Mus., vol. 2, no. 3, (1909, Aug.)

p. 148, pl. 44, fig. 3. Bay of Bengal
 off Arabian coast, 419 fathoms.

Depth $4\frac{4}{5}$; head $2\frac{3}{5}$. Snout
~~torques~~ $3\frac{1}{2}$ in head from snout tip;
~~eye~~ ~~orbit~~ $3\frac{2}{5}$; ~~eye~~ greater than snout;
 maxillary reaches $\frac{1}{3}$ in eye, expansion
 3 in eye, length $2\frac{4}{5}$ in head; teeth
 conspicuous; on premaxillaries, dentaries,
 palatines and vomer; interorbital very
 low. Gill rakers numerous, long, lanceolate.

Scales 50 in lateral line; 8 above, 8 below.

D. 17, inserted very slightly before anal, fin base $2\frac{2}{3}$ in head; A. 20, fin base $2\frac{2}{5}$; least depth of caudal peduncle $5\frac{1}{2}$; pectoral 8?; ventral 6?

Head jet black. Body brownish black. Fins black, with bluish tinge. Length 110 mm. (Lloyd.)

Indian Ocean.

Alepocephalus barnardi horman

Alepocephalus barnardi horman, Discovery
Rep., vol. 2, 1930, p. 270. Off Cape Point,
South Africa, 700 fathoms.

Bathytroctes rostratus (not Günther)

Barnard, Ann. South African Mus.,
vol. 21, pt. 1, June 1925, p. 122 (Cape Point
example).

Depth 6; head 3. Snout $3\frac{1}{2}$ in head;
eye $3\frac{1}{2}$; maxillary reaches nearly
half way in eye; lower jaw included
in upper.

Scales 50? in lateral line.

D. 18; A. 18, origin below fifth
dorsal ray, more than twice as distant

57

from snout end as from caudal base;
caudal peduncle nearly 3 times long
as deep. Length 200 mm. (Norman.)

Off Cape Point, South Africa, in
700 fathoms. Said to differ from
Alepocephalus productus Goode and
Bean in its narrow body, longer
snout, larger orbit and longer caudal
peduncle. From Alepocephalus
umbriceps Jordan and Thompson
differs in longer snout and larger
eye.

58

Alepocephalus edentulus Alcock
Alepocephalus edentulus Alcock,

— Goode and Bean, Oceanic Ichth., 1895, pp. 36, 510
(reference). — Alcock,

✓
in 715 fathoms. Journ. Asiatic Soc.

Bengal, vol. 65, pt. 2, 1896, p. 334 (off

Madras coast, 475 fathoms); Cat. Deep Sea Fishes
Indian Mus., 1899, p. 172 (off Madras coast,
475 fathoms; Bay of Bengal, 475 fathoms);
Illustrat. Zool. Investigator, Fishes, pt.
7, 1900, pl. 32, fig. 4.

Depth $4\frac{3}{5}$; head $3\frac{2}{5}$. Snout $4\frac{1}{3}$
in head; eye $5\frac{1}{10}$, $1\frac{1}{8}$ in snout;
maxillary reaches $\frac{3}{5}$ in eye, expansion
 $2\frac{3}{4}$ in eye, length $2\frac{7}{8}$ in head;
interorbital convex. Gill rakers
+12, slender, lanceolate.

Alepocephalus edentulus Alcock

Alepocephalus edentulus Alcock,

Ann. Mag. Nat. Hist., series 6, vol. 10,

1892, p. 358, pl. 18, fig. 2. Bay of

Bengal (N. Lat. $12^{\circ} 50'$ E. Long. $81^{\circ} 30'$),

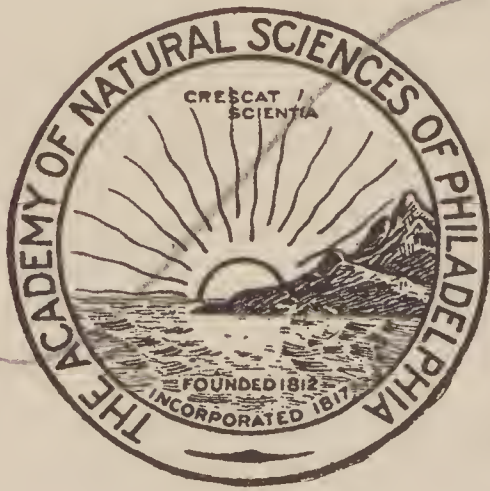
in 475 fathoms. Journ. Asiatic Soc.

Bengal, vol. 65, pt. 2, 1896, p. 334 (off

Madras coast, 475 fathoms); Cat. Deep Sea Fishes
Indian Mus., 1899, p. 172 (off Madras coast,
475 fathoms; Bay of Bengal, 475 fathoms);
Illustrat. Zool. Investigator, Fishes, pt.
7, 1900, pl. 32, fig. 4.

Depth $4\frac{3}{5}$; head $3\frac{2}{5}$. Snout $4\frac{1}{3}$
in head; eye $5\frac{1}{10}$, $1\frac{1}{8}$ in snout;
maxillary reaches $\frac{3}{5}$ in eye, expansion
 $2\frac{3}{4}$ in eye, length $2\frac{7}{8}$ in head;
interorbital convex. Gill rakers
+12, slender, lanceolate.

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

Scales 50 in lateral line; 15 transverse. Scales very caducous.

D. 29, origin over first fourth in anal base, fin height $3\frac{4}{5}$ in head; A. 35, fin height $4\frac{2}{5}$; caudal $1\frac{4}{5}$, deeply forked; least depth of caudal peduncle $6\frac{1}{3}$; pectoral ?; ventral $3\frac{7}{8}$.

Head and eyes jet black. Body and fins gray black. Length nearly 175 mm. (Alcock.)

Indian Ocean.

Subgenus Mitchillina Jordan and
Evermann

on each premaxillary followed by 2
robust teeth posteriorly in front
all forming transverse straight
series of 4; 12 mandibular teeth,
last 4 each side, ^{from main series} graduated small;
mandible short, not projecting,
little shorter than upper jaw;
followed by median pair of
similar ones,

Alepocephalus blanfordi Alcock

Alepocephalus blanfordi Alcock, Ann.

Mag. Nat. Hist., series 6, vol. 10, 1892, p. 357.

Gulf of Manaar (N. Lat. $6^{\circ}5-8'E$. Long. $77^{\circ}26'50''$),

in 902 fathoms; Journ. Asiatic Soc. Bengal,

vol. 65, pt. 2, 1896, p. 334 (compiled); Illustrat.

Zool. Investigator, Fishes, pt. 4, 1897, pl. 9, fig. 1;

Cat. Deep Sea Fishes Indian Mus., 1899, p. 171

(Arabian Sea, off Cape Comorin, 902 fathoms).—

— Horman, Discovery Rep., vol. 2, 1930, p.

270 (type).

Alepocephalus blanfordii Goode and Bean,

Oceanic Ichth., 1895, pp. 36, 509 (reference).

Alepocephalus blanfordi Alcock

Alepocephalus blanfordi Alcock, Ann.

Mag. Nat. Hist., series 6, vol. 10, 1892, p. 357.

Gulf of Manaar (N. Lat. $6^{\circ}5-8'$ E. Long. $77^{\circ}26'50''$),

in 902 fathoms; Journ. Asiatic Soc. Bengal,
vol. 65, pt. 2, 1896, p. 334 (compiled); Illustrat.

Zool. Investigator, Fishes, pt. 4, 1897, pl. 9, fig. 1;

Cat. Deep Sea Fishes Indian Mus., 1899, p. 171

(Arabian Sea, off Cape Comorin, 902 fathoms). —

Weber, Siboga Exped., vol. 57, Fische, 1913, p. 10

(Flores Sea, in 694 meters). — Weber and Beaufort,

Fishes Indo Austral. Archipelago, vol. 2, 1913, p. 100 (Flores Sea).

Alepocephalus blanfordii Goode and Bean,

Oceanic Ichth., 1895, pp. 36, 509 (reference).

Depth $5\frac{1}{2}$; head $2\frac{4}{5}$. Snout $3\frac{1}{5}$ in head; eye 4, $1\frac{1}{5}$ in snout, not quite twice interorbital; mandible included in upper jaw; maxillary reaches $\frac{1}{5}$ in eye, expansion $3\frac{1}{5}$ in eye, length $2\frac{7}{8}$ in head from snout tip; row of fine teeth in each jaw and on each prominent palatine; interorbital low. Gill rakers numerous, broadly lanceolate, acute.

Scales 65 in median lateral series to caudal base and 5 more on latter; 22 transversely. Scales

63

deciduous, cycloid. Lateral line
not evident.

D. 16, opposite anal; A. 17;
caudal forked; least depth of caudal
peduncle $4\frac{2}{3}$; paired fins damaged?

Head and fins black. Body
lavender gray. Length 357 mm.
(Alcock.)

Indian Ocean.

Alepocephalus productus Gill

Alepocephalus productus Gill, Proc. U. S. Nat. Mus., vol. 6, 1883 (1884), p. 257.

N. $39^{\circ}26'16''$ W. $70^{\circ}2'37''$, 1362 fathoms. —

Günther, Rep. Voy. Challenger, vol. 22, 1887,

p. 223 (compiled). — Goode and Bean,

Oceanic Ichth., 1895, p. 37, pl. 13, fig. 46

(type). — Jordan and Evermann, Bull.

U. S. Nat. Mus., no. 47, pt. 1, 1896, p. 452

(compiled).

Depth $4\frac{3}{5}$; head $2\frac{3}{4}$, width $2\frac{1}{2}$.

Snout 3 in head from eye to snout tip; orbit $3\frac{2}{3}$; eye 5, $1\frac{4}{5}$ in snout, greater than interorbital; maxillary reaches $\frac{1}{3}$ in eye, expansion $2\frac{1}{4}$ in

eye, length $2\frac{3}{5}$ in head;
interorbital 8, bony, with moderately
strong ridge over each eye, broadly
concave above and broadening concavely
to occiput; opercle smooth. Gill
rakers $6 + 15$, lanceolate, rather
short, $2\frac{1}{2}$ in eye, subequal with
gill filaments.

Scales 67 in lateral line to
caudal base; 9 above, 11 below, 62
predorsal forward to occiput.

Bases of dorsal, anal and caudal
scaly. Scales with very fine parallel
longitudinal striae, overset with
ovoid whorl like annuli.

D. 17, rays broken, fin low, fin base $2\frac{1}{8}$ in head; A. 17, rays broken, fin low, fin base $2\frac{3}{5}$; caudal damaged, apparently emarginate, rudimentary rays about 10, small, inconspicuous; least depth of caudal peduncle $4\frac{1}{2}$; pectoral rather small, at least 3 in head; ventral $4\frac{1}{4}$?, origin about midway between caudal base and front eye edge.

Head black. Iris dark gray, pupil brownish white. Inside gill opening blue black. Inside mouth black. Body dark brown, scale

pockets blackish brown. Fins
all dusky.

Western Atlantic.

33341 U.S. N.M. N. $39^{\circ}26'16''$ W. $70^{\circ}2'$

$37''$. In 1362 fathoms. Albatross

Station 2035. Length 460? mm., caudal
broken. Type.

68

Alepocephalus umbriceps Jordan and Thompson
Alepocephalus umbriceps Jordan and Thompson,
Mem. Carnegie Mus., vol. 6, No. 4, Sep. 1914,
p. 209, pl. 24, fig. 1. Omori, Japan,

Depth 5; head $2\frac{3}{4}$. Snout 4 in head; eye $4\frac{3}{4}$, $1\frac{1}{8}$ in snout; maxillary reaches $\frac{1}{2}$ in eye, expansion $2\frac{1}{8}$ in eye, length $2\frac{2}{3}$ in head; interorbital $6\frac{1}{2}$, broad. Gill rakers 7+19, longest $\frac{1}{3}$ of eye.

Scales 65 pores in lateral line. Vertical fins with scaly bases. Scales very caducous, most all fallen.

D. 17, fin height $3\frac{1}{5}$ in head; A. 17, fin height 3; caudal $1\frac{3}{5}$, deeply forked;

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

69

least depth $4 \frac{3}{5}$; pectoral $2 \frac{3}{4}$;
ventral 3.

Head deep black, each scale
on body tipped with black. Fins
black. Mouth cavity and peritoneum
black. Length 270 mm.

(Jordan and Thompson.)

Off Japan.

Alepocephalus bicolor Alcock

Alepocephalus bicolor Alcock, Ann. Mag.

Nat. Hist., series 6, vol. 8, 1891, p. 133. Bengal

Bay (N. Lat. $15^{\circ}56'50''$ E. Long. $81^{\circ}30\frac{1}{2}'$), in 240

— Goode and Bean, Oceanic Ichth., 1895, pp. 36, 509 (reference). — Alcock,

Fishes, pt. 1, 1872, pt. 4, fig. 2. Journ. Asiatic

Soc. Bengal, vol. 65, pt. 2, 1896, p. 334 (off

Madras coast, 240 to 276 fathoms). —

Cat. Deep Sea Fishes Indian Mus., 1899, p. 169
(Bay of Bengal, off Ganjam coast, 240 to 276 fathoms;
Arabian Sea, off Malabar coast, 360 fathoms).

(Flores Sea, 521 to 538 meters). — Weber

and Beaufort, Fishes Indo Austral.

Archipelago, vol. 2, 1913, p. 99, fig. 34

(Flores Sea).

Alepocephalus bicolor Alcock

Alepocephalus bicolor Alcock, Ann. Mag.

Nat. Hist., series 6, vol. 8, 1891, p. 133. Bengal

Bay (N. Lat. $15^{\circ}56'50''$ E. Long. $81^{\circ}30\frac{1}{2}'$), in 240

to 276 fathoms; Illustrat. Zool. Investigator,

Fishes, pt. 1, 1892, pl. 4, fig. 2. Journ. Asiatic

Soc. Bengal, vol. 65, pt. 2, 1896, p. 334 (off

Madras coast, 240 to 276 fathoms) in —

vol. 15,

Branner, Deutsch. Tiefsee Exp. Valdivia, „

^{Tiefsee-}

Fische, 1906, p. 19 (off Sumatra). — Weber,

Siboga Exped., vol. 57, Fische, 1913, p. 10

(Flores Sea, 521 to 538 meters). — Weber

and Beaufort, Fishes Indo Austral.

Archipelago, vol. 2, 1913, p. 99, fig. 34

(Flores Sea).

71

Depth $5\frac{3}{4}$ to $6\frac{1}{2}$; head $3\frac{1}{3}$ to $3\frac{2}{5}$, width $2\frac{3}{4}$ to 3. Snout $3\frac{1}{3}$ to $3\frac{1}{2}$ in head; orbit $3\frac{3}{5}$ to $4\frac{1}{8}$; eye $4\frac{4}{5}$ to 6, $1\frac{1}{2}$ to $1\frac{4}{5}$ in snout, $1\frac{1}{8}$ to $1\frac{4}{5}$ in interorbital; maxillary reaches $\frac{1}{8}$ to $\frac{1}{4}$ in eye, expansion $1\frac{3}{4}$ to $2\frac{1}{8}$ in eye, length $2\frac{4}{5}$ to 3 in head; interorbital $3\frac{2}{5}$ to 5, nearly level or only very slightly convex; opercle with 6 or 7 radiating striae. Gill rakers $10+15$, lanceolate, $1\frac{1}{4}$ in eye; gill filaments $\frac{2}{3}$ gill rakers.

Scales 62 to 65 in lateral line to caudal base; 7 above, 7 below, 32 or 33 predorsal forward to occiput.

Small scales on bases of all fins.
Scales with 17 to 19 fine long basal radiating striae; circuli very fine.

D. VIII, 12, I or VIII, 13, I, fin height 3 to 4 in head; A V, 22, I, fin height $3\frac{1}{4}$ to $4\frac{2}{3}$, fin origin opposite or slightly behind dorsal origin; caudal $1\frac{2}{5}$ to $1\frac{1}{3}$, deeply forked, rudimentary rays above or below 11 to 17; least depth of caudal peduncle $3\frac{3}{5}$ to $4\frac{1}{3}$; pectoral $1\frac{1}{4}$ to $2\frac{1}{2}$, in large example reach middle of ventral; ventral 2 to $2\frac{1}{2}$, reach $\frac{4}{5}$ to vent; vent about opposite dorsal origin.

Head like lamp black. Iris

black, pupil ivory white. Body dusky brown. Fins brownish. Inside mouth and gill opening blackish.

Indian and Pacific Oceans.

Although Weber and Beaufort give their dimensions as 300 mm. all my specimens are smaller. Neither these writers, or Alcock, show the long pectoral, which even in small specimens usually reaches beyond the ventral origin. In all my examples the mandible is shorter than the upper jaw.

4041. D. 5511. Camp Overton Light,
S. 80° E., 15.3 miles (N. $8^{\circ}15'20''$ E. 123°
 $57'$), northern Mindanao and vicinity.

In 410 fathoms. August 7, 1909. Length
233 mm.

4001. D. 5365. Cape Santiago Light,
N. 73° W., 6.7 miles (N. $13^{\circ}44'24''$ E. $120^{\circ}45'$
 $30''$), Balayan Bay, Luzon. In 214 fathoms.
February 22, 1909. Length 168 mm.

4750. D. 5122. Malabrigo Light, N. 46°
W., 20.60 miles (N. $13^{\circ}21'30''$ E. $120^{\circ}30'33''$),
east coast of Mindoro. In 220 fathoms.
February 2, 1908. Length 245 mm.

2570. D. 5378. Mompog Island (E.), N.
 38° W., 17 miles (N. $13^{\circ}17'45''$ E. $122^{\circ}22'$),
Marinduque Island and vicinity. In 395 fathoms.
March 4, 1909. Length 170 mm.

4035. D. 5586. Sipadan Island.
(M.) West, 9.4 miles (N. $4^{\circ}6'50''$ E. $118^{\circ}47'20''$), Sibuko Bay, Borneo and vicinity.

In 347 fathoms. September 28, 1909. Length 245 mm.?
to 4525.

4523, D. 5111. Sombrero Island, S.

41° E., 4.50 miles (N. $13^{\circ}45'15''$ E. $120^{\circ}46'30''$),

China Sea off southern Luzon. In 236
fathoms. January 16, 1908. Length 135 to
153 mm. 3 examples.

Alepocephalus bairdii Goode and Bean
Alepocephalus bairdii Goode and Bean,
 Proc. U. S. Nat. Mus., vol. 2, 1879 (1880),
 p. 55. Grand Banks, 200 fathoms. —

Jordan and Gilbert, Bull. U. S. Nat. Mus.,
 no. 16, 1882, p. 257 (compiled). — Günther,

Rep. Voy. Challenger, vol. 22, 1887, p. 224

(compiled). — Goode and Bean, Oceanic

Ichthy., 1895, p. 38, pl. 13, fig. 47 (type).

Mitchillina bairdii Jordan and Evermann,

Bull. U. S. Nat. Mus., no. 47, pt. 1, 1896,

454 (compiled).

Depth $7\frac{2}{3}$; head 4, width $2\frac{7}{8}$.

Snout $4\frac{1}{3}$ in head from snout tip to
 front eye edge; orbit $4\frac{1}{4}$, eye $5\frac{1}{5}$,

$1\frac{1}{8}$ in snout, greater than interorbital; maxillary reaches $\frac{1}{2}$ in eye, expansion 2 in eye, length 3 in head; interorbital 7, with elevated median convex ridge to occiput. Gill rakers $10 + 22$, lanceolate, $1\frac{1}{4}$ in eye; gill filaments $3\frac{1}{5}$ in gill rakers.

Scales 68 in lateral line to caudal base; 7 above, 11 below, 48 predorsal. Dorsal, anal and caudal bases finely scaly. Scales thin, flat, cycloid, well imbedded, with many as 17 weak radiating basal striae. Crenuli largely longitudinal, parallel, very fine, numerous.

D. 22, \pm (rays damaged), fin height equals orbit; A. 25, \pm (rays broken), fin height slightly greater than orbit, fin origin about opposite first fourth of dorsal base and fin base extends behind dorsal base for space equals $3\frac{2}{3}$ in dorsal fin base; caudal small, forked, lobes rounded, rudimentary rays about 10, little evident, fin $2\frac{1}{4}$ in head; least depth of caudal peduncle $3\frac{2}{5}$; pectoral $3\frac{1}{5}$; ventral (damaged) about equals orbit.

Uniform brownish in alcohol, due to most of skin rubbed off. Head where

skin remains blackish. Iris slaty,
pupil brown. Inside-gill openings
livid gray blue. Fins all dusky.

Western Atlantic.

22468 U.S.N.M. Gloucester Donation
no. 305. Christian Johnson. Schooner
"William Thompson". In 200 fathoms.
Figured by Goode and Bean.

38251 U.S.N.M. Grand Banks.
November 1886. A. Johnson. Length 947mm.
Twidenthy type.

Subgenus Ericara Gill and
Townsend

Gymnotus carapo Linnaeus.

Depth $7\frac{1}{2}$; head $7\frac{1}{3}$, width $2\frac{1}{10}$.
Snout $3\frac{1}{8}$ in head; eye $1\frac{1}{2}$, $3\frac{3}{4}$
in snout, 3 in interorbital;
maxillary reaches half way to eye,
length $4\frac{3}{4}$ in head; interorbital
4, broadly convex.

Scales all very small, close
set. Scales with 20 to 22 basal and
27 to 29 apical radiating striae;
circuli fine, complete.

A. 290, fin height $3\frac{3}{4}$ in head;
pectoral $2\frac{1}{4}$. origin opposite pectoral origin

General color light brown with
very close set dark brown to dusky
round dots or minute spots so
whole with olive tint. Ventral black
blotch at shoulder above gill opening.
Iris dark slate gray. Fins pale
or transparent, rays dark.

Aleporcephalus agassizii Goode and Bean

Aleporcephalus agassizii Goode and Bean,
Bull. Mus. Comp. Zool., vol. 10, 1882, p.

218. N. $38^{\circ}18'40''$ W. $73^{\circ}18'10''$, 922 fathoms.

— Günther, Rep. Voy. Challenger, vol. 22,
1887, p. 223 (compiled). — Goode and Bean,

Oceanic Ichth., 1895, p. 37, pl. 13, fig. 45

(N. 15° to 41° W. 63° to 74° , 538 to 1106 fathoms).

— Jordan and Evermann, Bull. U. S. Nat.
Mus., no. 47, pt. 1, 1896, p. 453 (compiled).

Depth $4\frac{3}{5}$ to $6\frac{1}{4}$; head $2\frac{3}{4}$ to $2\frac{7}{8}$,
width $2\frac{3}{5}$ to $2\frac{7}{8}$. Snout $3\frac{1}{3}$ to 4 in head;
orbit 4 to $4\frac{1}{2}$, eye 5 to 6, $1\frac{1}{5}$ to $1\frac{3}{5}$ in
snout, subequal to equal to interorbital;
maxillary reaches $\frac{2}{3}$ to $\frac{3}{4}$ in eye,

81

expansion $1\frac{1}{2}$ to $2\frac{3}{4}$ in eye, length $2\frac{1}{3}$ to $2\frac{3}{5}$ in head; interorbital $5\frac{1}{6}$ to $6\frac{1}{5}$, nearly level or with broad low ridge over each eye between which broad groove gradually broader and deeper to occiput. Gill rakers $9+19$, lanceolate, $1\frac{7}{8}$ in eye; gill filaments $\frac{3}{4}$ gill rakers.

Scales 88 to 90 in lateral line to caudal base; 14 above, 14 or 15 below, about 70 predorsal. Scales present on bases of vertical fins. Scales thin, elongate, deeply imbedded. Scales with circuli fine, numerous, mostly longitudinal parallel striae.

82

D. 15 (rays usually broken), fin base $2\frac{1}{3}$ to $2\frac{7}{8}$ in head; A. 17 to 19 (rays mostly broken), origin little behind dorsal origin, fin base 2 to $2\frac{3}{4}$ in head; caudal (damaged) forked, at least more than half of head length; least depth of caudal peduncle 4 to 5; pectoral $3\frac{1}{4}$ to $3\frac{1}{2}$, (usually broken); ventral 4 to $4\frac{1}{2}$ (usually broken), fin origin midway between front of orbit and caudal base.

Head black. Iris slate black, pupil pale brown. Inside mouth and gill opening livid purplish or plain black. Body brown, scale

pockets all dusky to blackish,
Fins dusky brown.

Western Atlantic.

2550 D. 5121. Malabrigo Light,
N. 14° W., 9 miles (N. $13^{\circ} 27' 20''$ E. 121°
 $17' 45''$), east coast of Mindoro.

In 108 fathoms. February 2, 1908.

Length 443 mm.

33056 U.S.N.M. N. $39^{\circ}29'45''$ W. 71°

$43'$. May 1883. Albatross Station (2030).
Length 440 mm.

33058 U.S.N.M. N. $39^{\circ}29'45''$ W. $71^{\circ}43''$

May 1883. Albatross Station (2030).
Length 410 mm.?

33059 U.S.N.M. N. $39^{\circ}29'45''$ W. $71^{\circ}43''$

May 1883. Albatross Station (2030). Length
470 mm.

33325 U.S.N.M. N. $39^{\circ}41'$ W. $69^{\circ}20'20''$.

In 1106 fathoms.

August 1, 1883. Albatross Station (2051).
Length 280 to 440? mm. 3 examples.

33391 U.S.N.M. N. $41^{\circ}53'$ W. $65^{\circ}35'$.

In 858 fathoms. September 2, 1883.

Albatross Station (2072). Length 210 mm.

33428 U.S.N.M. N.41°53'W.65°35'.

In 858 fathoms. September 2, 1883.

Albatross Station(2072). Length 338 to 478 mm. 3 examples.

33439 U.S.N.M. N.41°11'30"W.66°12'20".

In 499 fathoms. September 4, 1883.

Albatross Station(2078). Length 435 mm?
Very poorly preserved.

33442 U.S.N.M. N.41°9'40"W.66°2'20".

In 1253 fathoms. September 4, 1883.

Albatross Station(2077). Length 668 to 680 mm.
2 examples.

35457 U.S.N.M. N.39°45'30"W.70°17'.

In 961 fathoms. August 4, 1884.

Albatross Station(2191). Length 148 mm.

35518 U.S.N.M. N.39°39'45"W. 71°35'
15". In 538 fathoms. August 19, 1884.
Albatross Station (2201). Length 244mm.

35570 U.S.N.M. N.39°35' W. 71°18'45".
In 1073 fathoms. August 20, 1884.
Albatross Station (2205). Length 275?
to 320? mm. 3 examples. All poorly preserved.

35573 U.S.N.M. N.39°39'45"W. 71°35'15".
In 538 fathoms. August 19, 1884.
Albatross Station (2201). Length 325mm.

35583 U.S.N.M. N.39°35' W. 71°24'30".
In 1043 fathoms. August 20, 1884.
Albatross Station (2206). Length 430mm.

35587 U.S.N.M. N.39°47' W. 70°30'30". In
963 fathoms. August 22, 1884. Albatross
Station (2216). Length 350? mm. 2 examples.

35588 U.S.N.M. N.39°39'45"W. 71°18'
45". In 991 fathoms. August 21, 1884.
Albatross Station (2210). Length 400 mm.

35630 U.S.N.M. N.38°36'30"W. 73°6'.
September 12, 1884. Albatross Station (2233).
Length 250 mm.

38091 U.S.N.M. N.39°35'W. 70°54'. In
1106 fathoms. July 17, 1886. Albatross Station
(2684). Length 428 mm.

38111 U.S.N.M. N.39°35'W. 70°54'. In
1106 fathoms. July 17, 1886. Albatross Station
(2684). Length 440 mm.

38148 U.S.N.M. N.36°42'W. 74°30'. In
727 fathoms. October 25, 1886. Albatross
Station (2730). Length 298 mm.

38199 U.S.N.M. N. $37^{\circ}26'$ W. $73^{\circ}43'$.

In 944 fathoms. October 26, 1886.

Albatross Station (2733). Length 350 mm.

38206 U.S.N.M. N. $36^{\circ}36'$ W. $74^{\circ}32'$. In

679 fathoms. October 23, 1886. Albatross

Station (2729). Length 150 to 223 mm. 2 examples.

38209 U.S.N.M. N. $36^{\circ}30'$ W. $74^{\circ}33'$. In

859 fathoms. Albatross Station (2728).
Length 205 mm.

39194 U.S.N.M. N. $37^{\circ}34'30''$ W. $73^{\circ}58''$.

In 811 fathoms. September 17, 1885. Albatross
Station (2739). Length 370 mm?

39206 U.S.N.M. N. $37^{\circ}34'30''$ W. $73^{\circ}58''$. In

811 fathoms. September 17, 1887. Albatross

Station (2739). Length 320 mm?

1 example U.S.N.M. N. $41^{\circ}38'$ W. $124^{\circ}17'30''$. In 38 fathoms. Albatross
Station (2117). Length 300 mm.
Badly preserved after capture.

1 example U.S.N.M. N. $28^{\circ}43'$ W. $87^{\circ}14'30''$,
Gulf of Mexico. In 525 fathoms. March
13, 1885. Albatross Station (2393).

Length 50 mm.

1 example. U.S.N.M. N. $39^{\circ}47'07''$ W. $70^{\circ}35'00''$,
Cape Sable to Cape May. In 721 fathoms.
August 9, 1885.
Albatross Station (2552). Length 280 mm.

Alepocephalus tenebrosus Gilbert

Alepocephalus tenebrosus Gilbert, Proc.

U. S. Nat. Mus., vol. 14, 1891, p. 545. Albatross

2839, 2923, 2936 and 2980, 359 to 822 fathoms,

Santa Barbara Channel. — Goode and Bean,

Oceanic Ichth., 1895, p. 510 (reference).

— Jordan and Evermann, Bull. U. S. Nat.

Mus., no. 47, pt. 1, 1896, p. 453 (compiled).

— Townsend and Nichols, Bull. Amer. Mus.

Nat. Hist. New York, vol. 52, art. 1, May 16,

1925, p. 8, ^{pl. 3, fig. 1} (southwest of Santa Barbara

Islands 33° to 23° off Cape San Lucas,

Lower California, ^{630 to 640 fathoms} 1).

91

Depth $5\frac{1}{2}$ to 6; head $2\frac{7}{8}$ to $3\frac{1}{5}$, width 3. Snout $3\frac{1}{5}$ to $3\frac{1}{4}$ in head measured to eye; orbit $3\frac{1}{2}$ to $4\frac{1}{4}$; eye $4\frac{1}{2}$ to $5\frac{1}{5}$, $1\frac{1}{2}$ in snout, greater than interorbital; maxillary reaches to or $\frac{1}{3}$ in eye with age, expansion 2 to $2\frac{1}{5}$, length $2\frac{2}{5}$ to $3\frac{1}{5}$ in head; end of mandible with slight terminal symphyseal denticle or spur; interorbital 6 to $6\frac{3}{5}$, low, with wide concavity extending to occiput. Gill rakers $8+16$, lanceolate, $1\frac{1}{4}$ in eye; gill filaments $\frac{3}{4}$ gill rakers.

Scales 85 to 90 counted along and close above lateral line to

caudal base; tubes 50 to 55 in lateral line to caudal base; 12 or 13 scales above lateral line, 12 or 13 below, 53 to 58 predorsal forward to occiput. Scales very caducous, usually all fallen.

D. 17 or 18, rays mostly broken, fin height $3\frac{3}{4}$ in head, origin in young nearer head than caudal base, with age much nearer caudal base;

A. 17 to 19, rays mostly broken, fin height 3 in head, opposite dorsal origin in young to more posterior with age; caudal damaged, evidently forked, rudimentary rays 16 above

or below, more developed in young when extended well forward towards dorsal and anal, little conspicuous with age; least depth of caudal peduncle $4\frac{4}{5}$; pectoral $2\frac{3}{4}$ to $3\frac{2}{3}$; ventral $3\frac{1}{4}$? to $3\frac{2}{3}$.

Head black. Iris neutral slate, pupil ivory to brownish white. Inside gill opening black. Body brown, dark or dusky towards head and belly, often otherwise with deep dusky chestnut tinge. Fins all brownish.

Off California and Lower California.

46726 U.S.N.M. N. $33^{\circ}8'$ W. $118^{\circ}40''$

In. ? fathoms. Albatross Station

2839. May 8, 1888. Length 85 to 128 mm.

3 examples.

77464 U.S.N.M. Point Loma Light House, N. 32° E., 10.6 miles, California. Albatross Station 4307.

Length 100 to 139 mm. 3 examples.
March 2, 1904.

77465 U.S.N.M. Point Loma Light House, N. 36° E., 12.3 miles. March 14, 1904.
Albatross Station 4351.

Length 84 mm.

77466 U.S.N.M. Gull Islet, s. coast of Santa Cruz Island, N. 21° W., 2.9 miles. April 14, 1904. — Point Pinos Light House, Albatross Station 4429. ~~and 4515~~

S. 18° E., 8.1 miles. May 23, 1904. Albatross Station 4515.
Length 168 to 288 mm. 2 examples.

87558 U. S. N. M.

95

Albatross Station 5688. April 23, 1911.
In 525 fathoms. Length 354 mm.

Alepocephalus convexifrons Garman

Alepocephalus convexifrons Garman,

Mem. Mus. Comp. Zool., vol. 24, 1899,

p. 292, pl. 59, fig. 2. N. $16^{\circ}33'$ W. $99^{\circ}52'30''$,

660 fathoms, Gulf of Panama.

Depth 5; head 3. Snout to eye

$3\frac{1}{4}$ in head; orbit $3\frac{3}{4}$; eye $5\frac{1}{8}$,

$1\frac{1}{2}$ in snout; maxillary reaches $\frac{2}{5}$

in eye, expansion $2\frac{1}{6}$ in eye, length

$2\frac{4}{5}$ in head; teeth small, uniserial

on premaxillaries, dentaries and

palatines; interorbital low. Gill

rakers $7+15$, less $\frac{1}{2}$ of eye.

Scales 90 in lateral line; 8 above, 10 below.

D. 18, fin base $2\frac{1}{2}$ in head, fin origin little before anal origin; A. 19, fin base $2\frac{1}{2}$ in head; caudal damaged, evidently deeply emarginate; least depth of caudal peduncle $4\frac{2}{5}$; paired fins damaged, evidently small.

Deep black over surface and on linings of interior. Length 305 mm.
(Garman.)

Gulf of Panama.

Alepocephalus fundulus Garman

Alepocephalus fundulus Garman,
Mem. Mus. Comp. Zool., vol. 24, 1899,

p. 293, pl. 57, fig. 2. N. $6^{\circ}17'$ W. $82^{\circ}5'$, 1672

fathoms; N. $7^{\circ}5'30''$ W. $79^{\circ}40'$, 1270 fathoms,
Gulf of Panama.

Depth $5\frac{1}{4}$; head 3. Snout $3\frac{1}{4}$ in
head; eye 5, $1\frac{3}{5}$ in snout, $1\frac{1}{2}$ times
interorbital; maxillary reaches $\frac{2}{5}$
in eye, expansion $2\frac{1}{6}$ in eye, length
 $2\frac{3}{4}$ in head; teeth small, subconic,
on premaxillaries, dentaries and
palatines; interorbital low. Gill rakers
 $7+14$, less than half eye.

99

Scales 90 in lateral line; 10
above, 12 below.

D. 16 or 17, fifth branched ray
 $5\frac{1}{2}$ in head; A. 17, tenth branched
ray $5\frac{1}{3}$; caudal damaged, evidently
forked; least depth of caudal
peduncle $4\frac{1}{2}$; pectoral $2\frac{3}{5}$; ventral
 $4\frac{1}{3}$.

Entire surface and linings of
body cavities deep black. Length 420
mm. (Garman.)

Gulf of Panama.

Alepocephalus microlepis Lloyd

Alepocephalus microlepis Lloyd, Mem.

Indian Mus., vol. 2, 1903, no. 3, p. 146,
pl. 44, fig. 4. Arabian Sea, 600 to
850 fathoms.

Depth 4 (adult) to 6 (young); head
 $3\frac{2}{5}$ to $3\frac{4}{5}$, width $2\frac{1}{10}$ to $2\frac{4}{5}$. Snout
 $2\frac{3}{4}$ to $2\frac{4}{5}$ in head; 8 marginal rounded
horizontal keels form series around front
edge of snout; orbit $3\frac{1}{2}$ to $3\frac{3}{5}$; eye $5\frac{1}{8}$
to $6\frac{1}{2}$, $1\frac{1}{2}$ to $1\frac{4}{5}$ in snout, $1\frac{1}{3}$ to 2 in
interorbital; mandible included in
upper jaw; maxillary reaches $\frac{7}{8}$ or to
front eye edge, expansion 2 to $2\frac{1}{4}$ in

eye, length $2\frac{7}{8}$ to 3 in head; interorbital 4 to $4\frac{1}{3}$, with ridge each side and broad deep groove or concavity to occiput where expanding or widening. Gill rakers $1+12$, lanceolate, equal gill filaments or 2 in eye.

Scales 85 to 95 along and close above lateral line to caudal base; tubes 50 in lateral line to caudal base; 15 scales above, 15 below, 59 or 60 predorsal forward to occiput. Dorsal, anal and caudal bases scaly. Scales caducous, most all fallen. Scales with rather long, narrow, median basal notch; circuli

very fine, close set, chiefly marginal.
D. 24, I, origin nearer caudal
base than gill opening; A. 31, I to
35, I, origin midway between hind
preopercle edge and caudal base;
caudal (damaged) small, forked,
rudimentary rays 14 or 15 above or
below and extend well forward;
least depth of caudal peduncle $4\frac{2}{5}$ to
 $5\frac{1}{4}$ in head; pectoral $2\frac{3}{4}$?; ventral
(damaged) inserted nearly midway
between snout tip and caudal base
or little nearer caudal.

Head black. Iris neutral black,
pupil ivory white. Body brown, scale

pockets dusky or blackish brown,
finely reticulated in appearance.

Fins dusky.

Indian Ocean. Though I place
the material listed below with this
species Lloyd's account differs a
little in that he gives the scales
125 in the lateral line though only
30 to 35 transversely. He also gives
D. 20 to 22 and A. 30 to 32.

9972. D. 5465. Atulayan Island (F.),
S. 50° W., 7.3 miles (N. $13^{\circ}39'42''$ E. $123^{\circ}40'$
 $39''$), east coast of Luzon. In 500 fathoms.
June 17, 1909. Length 116 mm.

2948. D. 5467. Atulayan Island
(S.), S. $79^{\circ}W.$, 2.5 miles (N. $13^{\circ}35'27''$
E. $123^{\circ}37'18''$). In 480 fathoms.

June 18, 1909. Length 195 mm. Very poor.

4212. D. 5468. Atulayan Island
(S.), S. $83^{\circ}W.$, 5.7 miles (N. $13^{\circ}35'39''$ E.
 $123^{\circ}40'28''$). In 569 fathoms. June 18,
1909. Length 198 mm.

2876 and 2877. D. 5469. Atulayan
Island (E.), S. $63^{\circ}W.$, 4 miles (N. $13^{\circ}36'48''$,
E. $123^{\circ}38'24''$). In 500 fathoms. June 18,
1909. Length 93 to 235? mm. 2 examples.

2927. D. 5470. Atulayan Island
(E.), S. $68^{\circ}W.$, 6.7 miles (N. $13^{\circ}37'30''$
E. $123^{\circ}41'09''$). In 560 fathoms. June
18, 1909. Length 178 mm.

10228. D. 5610. Batei Daka Island
(S.), N. 87° W., 20.9 miles (N. $0^{\circ}36'S$. 122°
 $1'$), Gulf of Tomini, Celebes. In
678 fathoms. November 19, 1909. Length
285? mm. Very poorly preserved.

106

Alepocephalus salmoneus (Gill and Townsend)

Ericara salmonea (Gill and Townsend,
Proc. Biolog. Soc. Washington, vol. 11, Sep.
17, 1897, p. 232. Bering Sea southwest of
Pribilof Islands, Albatross Station 3603,
1771 fathoms. — Jordan and Evermann, Bull.
U. S. Nat. Mus., no. 47, pt. 3, 1898, p. 2816
(compiled).

Depth 5; head $2\frac{3}{4}$, width $2\frac{1}{8}$.
Snout $2\frac{7}{8}$ in head measured to eye;
orbit $4\frac{1}{5}$; eye 7, $2\frac{1}{2}$ in snout, 2
in interorbital, $1\frac{1}{2}$ in bony
interorbital; maxillary reaches $\frac{3}{4}$
in eye, expansion $1\frac{3}{5}$, length 2 in
head; interorbital $3\frac{1}{2}$, level,

followed by concavity on cranium before occiput. Gill rakers $2 + 14$, flexible, lanceolate, $\frac{1}{2}$ of eye, subequal with gill filaments.

Scales 108 in lateral line to caudal base; 12 above, 16 below, 75 predorsal to occiput. Vertical fins with some basal scales.

Scales largely adherent in pockets when present, deeply imbedded, small, rounded, thin; circuli ill defined, imperfectly longitudinal, over which feebly defined concentric whorls. Head naked.

D. 17, rays broken, longest

108

apparently about subequal with orbit, fin base $2 \frac{4}{5}$ in head, fin origin midway between end of depressed pectoral and caudal base; A. 24, rays broken, fin height at least equals orbit, fin base 2 in head, fin origin little before dorsal origin; caudal damaged, apparently emarginate, rudimentary rays 15 above or below, inconspicuous; pectoral $3 \frac{3}{4}$? in head, rather small; ventral inserted little nearer anal origin than pectoral origin, fin small, apparently long as orbit?;

vent midway between ventral and anal origins.

Head black. Iris black, pupil light brown. Inside gill opening and mouth livid black. Body dusky brown, scales adhering all lighter. Fins livid blackish, like head.

Bering Sea. In general appearance, especially with its toothless maxillary, approaching Alepocephalus.

48769 U.S.N.M. N. $55^{\circ}23'$ W. $170^{\circ}31'$

In 1771 fathoms. Albatross Station

3603. August 11, 1895. Length 660? mm., caudal damaged. Type.

Subgenus Whitleyidea new subgenus

Type — Alepocephalus niger
Günther.

Scales very small, 140 in lateral line. Maxillary reaches eye. D. 21, inserted behind anal origin. A. 27.

my friend
For Mr. Gilbert P. Whitley, Zoologist
of the Australian Museum, to
whom I am indebted for much
assistance in my studies of
Indo-Pacific fishes.

Alepocephalus niger Günther.

Sternopygus macrurus (Schneider).

Alepocephalus niger Günther 111

Alepocephalus niger Günther, Ann.

Mag. Nat. Hist., series 5, vol. 2, Sep. 1,
1878, p. 248. Seventy five miles east
south-east of Raine Island, Queensland
(north of Australia), in 1400 fathoms.

— Macleay, Proc. Linn. Soc. New South
Wales, vol. 6, 1881, p. 264 (copied). —

Günther, Rep. Voy. Challenger, vol. 22,
1887, p. 224, pl. 56, fig. B (type). —

Goode and Bean, Oceanic Ichth., 1895,
p. 36 (reference).

Pterothrissus gissi (not Hilgendorf)

Goode and Bean, Oceanic Ichth., 1895,
pl. 14, fig. 52 (error in transposition).

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

112

Depth $5\frac{4}{5}$; head 3. Snout $3\frac{1}{4}$ in head; eye $5\frac{4}{5}$, $1\frac{7}{8}$ in snout; maxillary reaches eye, expansion 2 in eye, length 3 in head; lower jaw shorter than upper; interorbital low. Gill rakers + 14, stout, pointed.

Scales 140 in lateral line, cycloid.

D. 21, origin over first sixth of anal base, fin height $6\frac{3}{4}$ in head; A. 27, fin height $5\frac{2}{3}$; caudal $2\frac{1}{2}$, little emarginate behind; least depth of caudal peduncle $4\frac{2}{3}$; pectoral $2\frac{3}{4}$; ventral $3\frac{2}{3}$.

Uniform deep black. In life light blue, deeper tint about fins

113
and gill covers. Length 330 mm.
(Günther.)

off Queensland.

Subgenus Conocara Goode and
Bean

on dorsal base and several on anal base. Front ventral edge dusky. Seven, 18 to 30 mm.

Aequidens vittata Heckel.

Depth $2\frac{2}{5}$ to $2\frac{1}{2}$; head $2\frac{2}{5}$ to $2\frac{4}{5}$, width $1\frac{7}{8}$ to 2. Snout $3\frac{1}{4}$ to $4\frac{3}{4}$ in head; eye 3 to $3\frac{1}{3}$, greater than snout, greater than interorbital in young to subequal with age; maxillary reaches $\frac{4}{5}$ to eye, length $3\frac{1}{4}$ to 4 in head; interorbital $2\frac{7}{8}$ to 3, convex, with slight median depression. Gill rakers 2 + 4, strong, short, $1\frac{2}{3}$ in gill filaments, which 2 in eye.

Scales 14 to 17 in upper branch of lateral line, lower section with 7 to caudal base and 1 more on latter; 3 above, 4 or 5 below to

Alepocephalus macropterus Vaillant

Alepocephalus macropterus Vaillant, Expéd.
Sci. Travailleur et Talisman, Paris, 1888,
p. 150, pl. 11, figs. 2a-c. Coast of Morocco,
2075 to 2115 meters; Canaries, 865 meters;
coasts of Soudan, 882 to 1435 meters; Banc
d'Arguin, 1550 meters.

Conocara macroptera Goode and Bean,
Oceanic Ichth., 1895, p. 39, pl. 12, fig. 43
(compiled). — Jordan and Evermann,
Bull. U. S. Nat. Mus., no. 47, pt. 1, 1896,
p. 457 (compiled). — Murray and Hjört,
Depths of the Ocean, 1912, p. 394, fig. 263
(off Morocco, 2300 meters). — Roule,
Rés. Camp. Sci. Monaco, vol. 52, 1919,
p. 5 (south of Pico, 1550 meters).

116

Depth $7\frac{3}{5}$; head $3\frac{1}{4}$, width $2\frac{3}{4}$.
Snout measured to eye $2\frac{3}{4}$ ^{in head}; orbit
3; eye $4\frac{1}{3}$, $1\frac{1}{2}$ in snout, $1\frac{1}{4}$ in
interorbital; maxillary reaches orbit,
expansion $2\frac{1}{4}$ in eye, length $2\frac{7}{8}$ in
head; interorbital $3\frac{1}{2}$, low, with
broad median depression, widening
at occiput. Gill rakers 1+17, lanceolate,
rather weakly spinescent, $3\frac{1}{2}$ in eye,
3 times gill filaments.

Scales about 190 in lateral line
to caudal base; tubes about 55?
in lateral line to caudal base;
22 scales above, 22 below, about 138
predorsal forward to occiput.

Conocara macroptera (Goode and Bean),
Oceanic Ichth., 1895, p. 39, pl. 12, fig.
43 (compiled) ✓ — Hjort, Depths of the Ocean,
1912, p. 394, ^{fig. 263} (off Morocco, 2300 meters). —
Roule, Rés. Camp. Sci. Monaco, vol. 52, 1919,
p. 5 (south of Pico, 1550 meters). —

117

Dorsal, anal and caudal bases
scaly. Scales thin, simple, adherent
about fore part of body. Scales
cycloid, though without striae;
circuli obsolete, imperfectly concentric.

D. V, 15, I, fin height $4\frac{1}{4}$ in head,
fin origin over middle of anal base;
A. 36, I, rays all branched, fin height
 $4\frac{3}{4}$, fin origin midway between hind
eye edge and caudal base; caudal
 $2\frac{4}{5}$?, forked, rudimentary ray 15
above or below, rather prominent and
extend well forward; least depth of
caudal peduncle $6\frac{1}{2}$; pectoral $3\frac{1}{4}$?;
ventral 4, fin origin midway between

snout tip and caudal base.

Head black. Iris and orbit neutral black, pupil pale buff white. Body dark russet brown, darker to blackish brown anteriorly or about head. Inside gill openings blackish. Fins pale, paired ones more dusky.

Atlantic Ocean.

44576 U.S.N.M. N. $31^{\circ}48'$ W. $137^{\circ}19'30''$.

October 18, 1891. Albatross Station 2751.

Length 225 mm.

Alepocephalus mcdonaldi (Goode and Bean)

Conocara mcdonaldi Goode and Bean,
Oceanic Ichth., 1895, p. 39, pl. 13, fig. 48.

N. $24^{\circ}36'$ W. $84^{\circ}5'$, 955 fathoms; N. $24^{\circ}36'$
W. $84^{\circ}5'$, 955 fathoms; N. $28^{\circ}47'30''$ W. $87^{\circ}27'$.

Conocara mcdonaldi Jordan and Evermann,
Bull. U. S. Nat. Mus., no. 47, pt. 1, 1896, p.
457 (compiled).

Depth $6\frac{2}{3}$; head $3\frac{1}{8}$, width $2\frac{1}{3}$.
Snout $3\frac{1}{4}$ in head; orbit $3\frac{1}{4}$; eye
 $5\frac{2}{5}$, 2 in snout, 2 in interorbital;
maxillary reaches orbit, expansion 2
in eye, length $3\frac{1}{5}$ in head; interorbital
 $2\frac{4}{5}$, bony interorbital $5\frac{1}{8}$, depressed,
largely concave medially. Gill rakers

2+14, lanceolate, 3 in eye, twice gill filaments.

Scales 216 along and close above lateral line to caudal base; 56 rather elongate and large tubes in lateral line to caudal base; 24 scales above, 28 below, 130 predorsal forward to occiput. Bases of vertical fins finely scaly. Scales simple, thin, adherent, cycloid; circuli fine and imperfect.

D. VII, 13, I, origin slightly before middle of anal base, first branched ray 5 in head; A. IV, 33, I, fin height 5; caudal $2\frac{3}{5}$, small, forked, 16

rudimentary rays above or below,
extend well forward toward dorsal
and anal fins; least depth of
caudal peduncle $5\frac{1}{3}$; pectoral $2\frac{4}{5}$;
ventral $4\frac{1}{5}$?

Head blackish. Iris neutral
black, large pupil ivory white.
Adipose eyelids dark neutral gray.
Inside gill opening and mouth
blackish. Body light brown, sooty
or dusky on belly. Fins pale,
paired ones darker.

Atlantic Ocean.

124
39482 U.S.N.M. N. $28^{\circ}47'30''$ W.

$87^{\circ}27'$. In 724 fathoms. 1885.

Albatross Station 2392. Length 208 mm. Type.

47651 U.S.N.M. N. $24^{\circ}36'$ W. $84^{\circ}5'$.

In 955 fathoms. Blake Station CLXV.

Length 147 mm. Very poorly preserved.

Halisauriceps new genus

Type ^{Alepocephalus} ~~Halisauriceps~~ longiceps Lloyd

Body elongate, strongly compressed, rather deep. Caudal peduncle small.

Head large, conic, sides flattened below. Snout protrudes in point before mandible tip. Eye moderate, high, nearly median in head length. Mouth rather small, wide. Teeth minute or obsolete, or only few feeble ones on premaxillaries or front edges of mandible. Interorbital and top of head depressed. Gill rakers lanceolate. Scales large, thin, cycloid, very caducous, most all lost in

preserved examples. Dorsal and anal similar, posterior, opposite. Caudal small, Pectoral short. Ventral small, midway in body.

Diagnosis. This genus is related to leptocephalus and allied genera chiefly in its toothless maxillaries, though its dentition unusually feeble. It appears unique in its pointed snout, so that its physiognomy recalls superficially certain Halosauridae.

Halisaurus; ceps, head.

Halisauriceps longiceps (Lloyd).

124

Halisauriceps longiceps (Lloyd)

Alepocephalus longiceps Lloyd,
Mem. Indian Mus., vol. 2, 1903,
p. 147, pl. 44, fig. 2. Bay of
Bengal, 693 fathoms.

... , 1 to 8 ...
except scaly caudal base. Scales
with 14 to 17 basal radiating striae;
3 to 45, ^{small} feeble obsolete denticles,
in 3 to 8 transverse series; circuli
very fine, complete.

D. XV, 8, I,

Depth $5\frac{3}{4}$ to 6; head 3 to $3\frac{1}{5}$,
 width 3. Snout $2\frac{2}{3}$ to $2\frac{4}{5}$ ^{from snout tip to eye} in head;
 orbit 4 to $4\frac{1}{8}$;
 eye $5\frac{1}{5}$ to 7, 2 to $2\frac{1}{4}$ in snout, 1 to
 $1\frac{2}{5}$ in interorbital; maxillary reaches
 eye to $1\frac{1}{8}$ in eye, expansion $2\frac{3}{4}$ to 3
 in eye, length $2\frac{2}{5}$ to $2\frac{3}{4}$ in head
 from snout tip; interorbital $4\frac{7}{8}$ to
 5, low, level. Gill rakers 6 + 10,
 lanceolate, about twice gill filaments
 or 2 in eye.

Scales 52 in lateral line to
 caudal base; 6 above, 35 predorsal.
 Apparently bases of vertical fins
 scaly. Scales most all fallen, very

126

caducous. Tubes in lateral line long, slender, well exposed on few remaining scales.

D. VI, 12, I or VI, 13, I, rays all broken, fin bases subequal with those of anal - or $4\frac{3}{4}$ to 5 in total body length without caudal;
A. VI, 16, I or VI, 17, I, rays all broken; caudal damaged, rudimentary rays well developed though little conspicuous; least depth of caudal peduncle $4\frac{3}{5}$ to $5\frac{1}{4}$ in head; pectoral damaged, evidently would seem not to reach over half way to ventral; ventral

damaged, fin origin slightly nearer snout tip than caudal base.

Head black. Iris black, pupil ivory white. Body brown. Fins dusky.

Bay of Bengal, Philippine Seas, Malassar Strait. The materials listed below are identified with this species as they seem to represent the adult stages. The following is condensed from Lloyd's description and figure:

Depth $6\frac{1}{8}$; head $2\frac{1}{2}$. Snout $2\frac{3}{4}$ in head, protrudes in sharp slender point before mandible tip; eye $5\frac{1}{5}$, 2 in snout; maxillary reaches $\frac{7}{8}$ to eye, expansion $2\frac{3}{4}$ in eye, length $2\frac{7}{8}$ in head; minute teeth on premaxillary, dentary, vomer and palatine; interorbital low. Gill rakers long, numerous, lanceolate, acute.

Scales 52 in lateral line;

5 above, 6 below.

D. 20, origin over anal origin;
 A. 23; least depth of caudal peduncle
 $6\frac{1}{3}$ in head; pectoral $7\frac{4}{5}$, rays
 10; ventral $7\frac{1}{3}$? in head, rays 6.
 L Length 90 mm.

10198. D. 5470. Atulayan Island
 (E.), S. 68° W., 6.7 miles (N. $13^{\circ}37'30''$ E.
 $123^{\circ}41'9''$), east coast of Luzon. In
 560 fathoms. June 18, 1909. Length
 230? mm.

3807. D. 5668. Mamuju Island
(E.), S. 31° E., 10.6 miles (S. $2^{\circ}28'15''$
E. $118^{\circ}49'$), Macassar Strait. In 901
fathoms. December 29, 1909. Length 250
mm. ~~Upper~~

2120. D. 5460. Sialat Point Light,
N. 24° E., 8.2 miles (N. $13^{\circ}32'30''$ E. $123^{\circ}58'$
 $6''$), east coast of Luzon. In 565 fathoms.
June 10, 1909. Length 200? mm.

3208. D. 5472. Sialat Point Light,
N. 63° E., 13.6 miles (N. $13^{\circ}33'36''$ E. 123°
 $49'$). In 550 fathoms. June 19, 1909.
Length 195 mm.

131

Genus Xenognathus Gilbert

Xenognathus Gilbert, Proc. U. S. Nat.

Mus., vol. 48, 1915, p. 311. Type Xenognathus

profundorum Gilbert, orthotypic.

Body compressed, elongate. Head deeper than wide. Snout depressed at tip, bounded anteriorly by strong, sharp, osseous crest on basal part of premaxillaries. Eye rather small, anterior. Premaxillary greatly expanded, forms plate extending nearly horizontally backward and completely receives deep mandible within. Teeth slender, cardiform, present on premaxillaries, mandible and front of palatines. Opercular flap voluminous. Gill membranes separate. Scales very small, ^{cycloid,} pores in lateral line larger or about 62. Dorsal shorter than anal, origin behind anal origin. Caudal forked.

One species in the Eastern Pacific.

Branchiostegals 6.

Xenognathus profundum Gilbert

Xenognathus profundum Gilbert, Proc.

U. S. Nat. Mus., vol. 48, 1915, p. 311, pl. 14,

fig. 2. N. $33^{\circ} 3' 15''$ W. $120^{\circ} 42'$, 1350 to 2182

fathoms, off Catalina Island.

Depth $4\frac{1}{3}$; head 3, width $2\frac{1}{2}$.

Snout to eye 3 in head; orbit 4; eye $6\frac{1}{3}$, 2 in snout to eye, 2 in interorbital, $1\frac{3}{5}$ in bony interorbital; maxillary reaches opposite hind eye edge, expansion $1\frac{4}{5}$ in eye, length $2\frac{1}{4}$ in head; interorbital $3\frac{1}{5}$, bony interorbital $4\frac{1}{5}$, with broad convex ridge above each eye, separated by broad median depression extending

back to become deeper and larger just before occiput. Gill rakers 4 + 14, lanceolate, $1\frac{3}{4}$ in eye; gill filaments $\frac{4}{5}$ of gill rakers.

Scales 122 in lateral line to caudal base; 17 above, 26 below, 100 predorsal. Vertical fins with scaly bases. Scales rather firmly adherent, small, thin, in rather even longitudinal rows, smaller about edges of body and fin bases. Scales also with more or less ill defined weak circuli, these weakly or imperfectly concentric.

D. 20, rays broken, fin base $2\frac{1}{3}$

in head, fin origin little nearer
caudal base than pectoral origin.
or over first fourth of anal base;
A. 28, rays broken, fin base $1\frac{3}{5}$
in head, fin origin slightly nearer
gill opening than caudal base;
caudal damaged, evidently small,
rudimentary rays 10 or 11 above or
below, rather prominent and extend
forward well toward dorsal and anal;
least depth of caudal peduncle $3\frac{2}{3}$;
pectoral $2\frac{1}{3}$; ventral damaged,
apparently equals orbit; vent close
before anal origin.

Head blackish. Iris neutral

135

black, pupil light brown. Body
dark brown. Fins brown.

Off California.

75826 U.S.N.M. N. $33^{\circ}2'15''$ W. $120^{\circ}42'$,

Off Santa Catalina Island. Albatross

Station 4390. March 28, 1904.
~~June 22, 1914~~. Length

462 mm. Type.

Genus Leptochilichthys Garman

Leptochilichthys Garman, Mem. Mus.
Comp. Zool., vol. 24, 1899, p. 284. Type
Leptochilichthys agassizii Garman, monotypic.

Body elongate, compressed, tapering rather narrowly posteriorly. Head large, deeper than wide. Snout deep, blunt, thick. Mouth wide. Maxillary long, wide, extends well beyond eye. Upper jaw toothless; small uniserial teeth in lower jaw, vomer and palatines. Gill membranes not united, free from isthmus. Gill rakers long, numerous, leathery. Branchiostegals 13. Pseudobranchiae present. Scales moderate, cycloid, smaller on lateral line. Dorsal postmedian, base entirely before anal. Caudal forked. Paired fins small. One species in the Eastern Pacific, with the aspect of Bathytroctes.

Leptochilichthys agassizii Garman ¹³⁷

Leptochilichthys agassizii Garman,
Mem. Mus. Comp. Zool., vol. 24, 1899, p. 285,
pl. 58, fig. 3. N. $1^{\circ} 7'$ W. $80^{\circ} 21'$, 1573 fathoms,
Gulf of Panama.

Depth $4 \frac{1}{2}$; head $2 \frac{2}{3}$, width
about 2. Snout to eye $4 \frac{1}{6}$ in head;
orbit $5 \frac{4}{5}$, eye $1 \frac{7}{8}$ in snout, ^{equal interorbital}
maxillary extends $1 \frac{1}{2}$ eye diameters
behind eye; expansion $1 \frac{1}{5}$ in eye,
length $1 \frac{2}{3}$ in head; interorbital
moderately high. Gill rakers 8+19.

Scales 64 along close above
lateral line; 5 above, 5 below.

Fins not scaly.

138

D. 14, posterior rays higher
or 7 in head; A. 13, fin height
 $8\frac{1}{5}$; caudal small, length $2\frac{3}{5}$;
least depth of caudal peduncle $4\frac{3}{4}$;
pectoral $4\frac{2}{3}$; ventral $4\frac{2}{3}$.

Black on body, head, fins and
linings. Length 305 mm. (Garman.)
Gulf of Panama.

Genus Leptochilichthys Garman
Leptochilichthys Garman, Mem. Mus.
Comp. Zool., vol. 24, 1899, p. 284. Type
Leptochilichthys agassizii Garman,
monotypic.

Body elongate, compressed, well rounded above and below. Head long, deeper than wide. Snout deep, blunt, thick, narrowly triangular in profile. Mouth wide. Maxillary long, broad, extends well beyond eye. Upper jaws toothless. Small uniserial teeth on mandible, palatines and vomer. Gill membranes not united, free from isthmus. Gill rakers rather numerous, leathery. Branchiostegals 13. Pseudobranchiae present. Scales moderate, cycloid, smaller on lateral line. Dorsal posterior, begins well before anal, Caudal forked. Paired fins small.

One species in the Eastern Pacific. Apparently unique in its increased branchiostegals.

139

Genus Asquamiceps Zugmayer
Asquamiceps Zugmayer, Bull. Inst.
Océanogr. Monaco, no. 193, January 20,
1911, p. 2. Type Asquamiceps velaris
Zugmayer, monotypic.

Body elongate, tapering back
rather narrowly and slenderly
posteriorly. Head very large, nearly
equals rest of body to caudal base.
Snout rather short, narrowly
triangular in profile. Eye moderate.
No upper teeth, mandibular microscopic.
Interorbital broad, level. Opercle
very large, prolonged as membranous
lobe overhanging pectoral base. Gill

forms broad free fold across isthmus.
Gill rakers moderately long, pointed.
Branchiostegals 4. Body covered with
rather close set, deeply imbedded,
elongate, thin cycloid scales. Head
largely scaly or at least large
imbedded cycloid scales on cheeks,
postocular, cranium and opercles.
Lateral line distinct, complete,
axial along side of body. Dorsal and
anal alike, though posterior or
little before last third in combined
head and body length, postero-median
or posterior rays highest. Caudal
well forked. Pectoral with deep

140

membranes largely united. Scales small, irregular, crowded, cycloid. Head naked or scaly. Dorsal and anal opposite, similar, well posterior. Caudal forked. Pectoral with deep base. Ventral small, close before anal.

Atlantic and East Indies.
Known chiefly by its enormous head which nearly long as rest of body without caudal.

141

Analysis of species

a. Asquamiceps. Head naked;
mandible very slightly protruded;
maxillary reaches $\frac{4}{5}$ in eye. velaris.

a. ² Megalepocephalus new subgenus.
Head somewhat scaly; mandible
included within upper jaw; maxillary
reaches slightly behind eye.
longmani.

Subgenus Asquamiceps Zugmayer
Mandible slightly protrudes in front.
Maxillary reaches $\frac{4}{5}$ in eye.
Branchiostegals 5. Head naked.
Dorsal and anal inserted little behind
last third in length without caudal.

142

Asquamiceps velaris Zugmayer

Asquamiceps velaris Zugmayer, Bull.
Inst. Océan. Monaco, no. 193, January 20,
1911, p. 2. N. $36^{\circ}6'$ W. 0° , 3660 meters, off
Portugal; Rés. Camp. Sci. Monaco, vol.
35, 1911, p. 10, pl. 1, fig. 4 (type). —
Horman, Discovery Rep., vol. 2, 1930, p. 267
(S. $33^{\circ}50'$ to $34^{\circ}13'$ E. $16^{\circ}4'$ to $15^{\circ}49'$, 2580
meters).

Depth $4\frac{1}{8}$; head $2\frac{1}{10}$. Snout
 $4\frac{4}{5}$ in head from snout tip; eye
 $4\frac{4}{5}$, equals snout; maxillary reaches
 $\frac{4}{5}$ in eye, expansion $2\frac{2}{3}$ in eye,
length $2\frac{7}{8}$ in head from snout tip;
mandible slightly protrudes in front.

Scales 75 in median lateral series.

D. 15, fin origin opposite anal origin, fin height $4\frac{7}{8}$ in ^{total} head length; A. 17, fin height $4\frac{2}{3}$; caudal $2\frac{1}{2}$, deeply forked; least depth of caudal peduncle 6; pectoral $6\frac{1}{4}$; ventral 5.

Violaceous black. Fins brownish. Length 175 mm. (Zugmayer). Eastern Atlantic.

Megalepocephalus new subgenus

Type — Asquamiceps longmani new species.

Body strongly compressed, with short caudal ^{Head $3/7$ body length to caudal base} peduncle. Snout obtuse, conic. Mouth large, lower jaw included within upper. Preopercle rather close behind eye and end of maxillary. Gill opening extends forward opposite hind end of maxillary where membrane forms broad free fold across isthmus. Branchiostegals 4. Body covered with rather close set, deeply imbedded, elongate, thin scales. Head largely scaly or at least large imbedded cycloid scales on cheeks, postocular, cranium and opercles. Dorsal and anal inserted little before last third in length without caudal.

Diagnosis. Differs from subgenus Asquamiceps as set forth in the preceding "analysis of species".

(Méyas, large; Alepocephalus; with reference to the very large head.)

Genus Asquamiceps Zugmayer

Asquamiceps Zugmayer, Bull. Inst.

Océanogr. Monaco, no. 193, January 20, 1911,

p. 2. Type Asquamiceps velaris Zugmayer,
monotypic.

Body elongate, tapering rather narrowly and slenderly posteriorly. Head very large, equals rest of body to caudal base. Snout rather short, narrowly triangular in profile. Eye moderate. No upper teeth, mandibular microscopic. Interorbital broad, level. Opercle very large, prolonged as membranous lobe overlapping pectoral base. Gill membranes largely connected. Scales small, crowded, irregular, cycloid. Head naked or scaly. Dorsal and anal opposite, similar, well posterior. Caudal well forked. Pectoral with deep base. Ventral small, close before anal.

Atlantic and East Indies. Known chiefly by its enormous head.

Asquamiceps langmani new species

Depth $4\frac{1}{5}$; head $2\frac{1}{3}$, width 3.

Snout 4 in head, from snout tip to eye; orbit 5; eye $6\frac{1}{2}$, $1\frac{2}{5}$ in snout, $1\frac{3}{5}$ in interorbital; maxillary reaches very slightly behind eye, expansion 2 in eye, length $2\frac{2}{5}$ in head; upper jaw and palate toothless, lower with single row of very fine minute simple uniform teeth; lower jaw slightly included within upper; interorbital $4\frac{1}{8}$, broad, nearly level, depressed medially. Gill rakers 7+14, lanceolate, 5 or 6 times longer than gill filaments, equal eye.

Scales 60 along close above lateral line to caudal base; tubular scales 45 in lateral line to caudal base; 11 above, 11 below, 42 predorsal forward to occiput. Apparently no scales or very few on fin bases. Scales with single horizontal apical stria; circuli fine, irregular, ill defined.

D. VII, 13, I, opposed to anal or fin origins about opposite, fifth branched ray $3\frac{1}{3}$ in head; A. VIII, 11, I, fifth branched ray $3\frac{1}{8}$; caudal $2\frac{1}{5}$, well forked, 8 or 9 rather small graduated rudimentary rays above or below; least depth of caudal peduncle 6,

depressed dorsal and anal rays reaching rudimentary caudal rays; pectoral I, 15, broad, length $3\frac{1}{3}$ in head; ventral I, 5, inserted midway between hind pupil edge and caudal base, length 4 in head.

Most of head like lamp black, some brownish on maxillary, cheeks and opercles. Iris black, pupil ivory white. Body dark or blackish brown, more blackish on belly. Fins all dusky.

Diagnosis. Contained in the subgeneric account.

Type no.

U. S. N. M.

4229. D. 5655. Cape Tabako,
N. 7° E., 13 miles (S. 3° 34' 10" E. 120° 50'
30"), Gulf of Boni, Celebes. In 608
mm. December 18, 1909. Length 123 mm.
Type.

Genus Bathytroctes Günther

Bathytroctes Günther, Ann. Mag. Nat. Hist., series 5, vol. 2, 1878, p. 249. Type Bathytroctes macrolepis Günther, designated by Goode and Bean, Oceanic Ichthy., 1895, p. 40.

Talismania Goode and Bean, ^{Oceanic} Ichthy., 1895, p. 44. Type Bathytroctes homopterus Vaillant, designated by Jordan, Genera of Fishes, pt. 4, 1920, p. 467.

Bajacalifornia Townsend and Nichols, Bull. Amer. Mus. Nat. Hist., New York, vol. 52, 1925, p. 8. Type Bajacalifornia burragei Townsend and Nichols, monotypic.

even. Maxillary reaches eye or beyond eye. Premaxillary, maxillary,

Genus Bathytroctes Günther
Bathytroctes Günther, Ann. Mag. Nat. Hist.,
series 5, vol. 2, 1878, p. 249. Type Bathytroctes
macrolepis Günther, designated by Goode
and Bean, Oceanic Ichthy., 1895, p. 40.
Talismania Goode and Bean, ^{Oceanic} Ichthy.
1895, p. 44. Type Bathytroctes homopterus
Vaillant, designated by Jordan, Genera
of Fishes, pt. 4, 1920, p. 467.

Pey, Mem. 7,
10, fig. 2.
Barnard,

Body elongate, compressed.
Head variably large or small. Eye
usually large and prominent.
Mouth well cleft, wide, jaws nearly
even. Maxillary reaches eye or
beyond eye. Premaxillary, maxillary,

Chauliodus richardsoni Poe, Mem. 7
Nat. Cuba, vol. 1, 1852, pl. 10, fig. 2.

Borostomias richardsoni Barnard,

of Fishes,

Body

Head va

usually

mouth u

dentary^{vomer} and palatines with minute teeth, often feeble or deciduous on latter. Gill openings large, gills very narrow. Gill rakers lanceolate, rather long. Pseudobranchiae present. Branchiostegals 7. Pyloric caeca moderate. Scales large or small, usually very deciduous and sometimes present on opercles and cheeks. Dorsal and anal short or moderate, opposed or dorsal advanced.

Analysis of species

a. Talismania. Dorsal and anal origins opposite.

b. Head $2\frac{3}{5}$ to $2\frac{4}{5}$; scales absent or very caducous.

c. A. 13; short spur at front tip of mandible. mollis

c.² A. 18; no mandibular spur. welshi

b.² Head $3\frac{1}{5}$ to $5\frac{1}{4}$.

d. Scales 43 to 47.

e. Maxillary reaches to or $\frac{1}{5}$ in eye; D. 18. antillarum

e.² Maxillary reaches $\frac{1}{4}$ to $\frac{1}{3}$ in eye; A. 19 to 22. hataii

e.³ Maxillary reaches behind eye; D. 21. aequatoris

d.² Scales 65 to 75; maxillary $\frac{1}{2}$ in eye. homopterus

a.² Dorsal inserted before anal origin.

f. Bathytroctes. Pectoral without long filament and caudal lobes not ending in filaments.

g. Scales large, 44 to 58; maxillary reaches $\frac{1}{2}$ to hind eye edge.

h. Head $2\frac{3}{5}$ to $3\frac{1}{4}$.

i. Lower jaw projects.

j. Head $2\frac{3}{5}$; maxillary reaches $\frac{4}{5}$ in eye; lower gill rakers? zugmayeri

j. Head $2\frac{7}{8}$ to $3\frac{1}{4}$.

k. Anal origin rather close behind dorsal origin; maxillary reaches to or beyond hind eye edge; lower gill rakers 17. harperi

k. Anal origin at last $\frac{2}{5}$ of dorsal base; maxillary reaches $\frac{2}{5}$ to $\frac{1}{2}$ in eye; lower gill rakers 25. burragei

k. Anal origin opposite middle of dorsal base; maxillary reaches well beyond eye; lower gill rakers about 17. innere

i.² Lower jaw included within upper;
maxillary reaches hind eye edge.
alvifrons

h.² Head $3\frac{1}{3}$ to $3\frac{3}{4}$.

l.¹ D. 15; A. 11.

inspector

l.² D. 16; A. 16.

macrolepis

l.³ D. 17; A. 15.

calcaratus

l.⁴ D. 18; A. 18.

squamosus

g.² Scales small, 70 to 105.

iv.¹ D. 13 or 14; A. 11.

n.¹ Scales 75; maxillary reaches
 $\frac{3}{4}$ in eye. grimaldii

n.² Scales 105; maxillary
reaches beyond eye. melanophalus

Q.² D. 15 to 20.

P.¹ Maxillary reaches beyond eye.

Q.¹ A. 11; lower gill rakers 16.
alveatus.

Q.¹ A. 15 to 18.

L.¹ Lower gill rakers 12.

L.² Lower gill rakers 25.
stomias

P.² Maxillary reaches $\frac{7}{8}$ in eye;
lower gill rakers 24; A. 18.
rostratus

microlepis

L.² Hemabathytroctes new subgenus.
Pectoral with long filamentous
ray reaching caudal; scales 100;
head very large, $2\frac{2}{5}$; dorsal
fin slightly advanced. longifilis

Subgenus Talismania Goode and
Bean

specimens representing 48⁷ species.
Although this is but a small
proportion of ^{the} known ichthyofauna
of the Paraguay, as Eigenmann,
McAtee and Ward listed 253
species in 1907, many are of special
interest. The following are
described as new:

Curimatella rehni,

Hyphessobrycon rehni,

~~Hyphessobrycon grammostigma~~,

Roeboides rehni,

Pygidium johnsoni.

Besides ~~these~~ ^{the new forms} ~~a number~~ ^{most} of the other
species are ~~noticed~~ ^{described} more or less
in detail or figured, ^{chiefly} ~~notably~~ on
account of their rarity in North American
collections and our imperfect knowledge
of them.

Bathytroctes mollis Koehler

Bathytroctes mollis Koehler, Ann. Univ.
Lyon, ^{vol. 26,} 1896, p. 517, pl. 26, fig. 2. Gulf of
Gascony. N. 46° 28' W. 7°; 1710 meters,

Talismania mollis Roule, Bull. Inst.

Océanogr. Monaco, no. 320, May 20, 1916,
p. 11 (Terceira de Azores, 1805 meters);

Rés. Camp. Sci. Monaco, vol. 52, 1919, p. 6
(30 miles east of Terceira, 1805 meters).

Depth $4 \frac{2}{5}$; head $2 \frac{4}{5}$. Snout

$3 \frac{7}{8}$ in head from snout tip; eye
^{greater than interorbital}
 $4 \frac{1}{4}$, $1 \frac{1}{6}$ in snout; maxillary

reaches slightly behind eye,

expansion $1 \frac{3}{4}$ in eye, length 2 in

head from snout tip; lower jaw

157

and with short ^{terminal} conic spur, directed downward
very slightly protrudes; teeth
uniform, fine, short, little recurved
in jaws, less numerous in mandible;
interorbital low, about $\frac{2}{3}$ of eye.

Scales absent.

D. 17, second ray 4 in head, ^{origin opposite anal origin}

A. 18, second ray 4; caudal $3\frac{1}{8}$,
slightly emarginate behind,
rudimentary rays 10, well advanced,
conspicuous; least depth of caudal
peduncle 5; pectoral $4\frac{1}{5}$;
ventral 4.

Length 370 mm.

(Koehler.)

Eastern Atlantic.

Bathytroctes welshi new species.

Depth $4\frac{3}{4}$; head $2\frac{3}{4}$, width 4.
Snout $3\frac{3}{4}$ in head from snout tip
to eye; orbit $3\frac{1}{2}$; eye $3\frac{3}{4}$, $1\frac{1}{8}$ in
snout, much greater than interorbital;
maxillary reaches opposite hind eye
edge, expansion $1\frac{3}{5}$ in eye, length
 $2\frac{1}{8}$ in head from snout tip; interorbital
7, low, broadly concave, Gill rakers
7 + 16, lanceolate, half of eye; gill
filaments $\frac{2}{5}$ of gill rakers.

Scales very caducous, all now
fallen. Lateral line axial along
side, complete to caudal base.

D. 18, rays low, all broken,

159

fin base 2 in total head length;
fin origin midway between beginning
of lateral line and caudal base;
A. 17, rays low, all broken, fin
base 2 in total head length; caudal
apparently forked, broken,
rudimentary rays 8 or 9 above or
below, moderate; least depth of
caudal peduncle 8; pectoral very
small, as now broken little less
than pupil; ventral broken, $\frac{1}{2}$ of
orbit.

Head black. Iris slate black,
pupil ivory white. Body brown, with
dusky tinge. Fins brownish.

Diagnosis. Only the poorly preserved type known, distinguished by its large head.

Type no.

U. S. N. M.

3842. D. 5648. North Island (S.), N. 87° E., 10.2 miles (S. $5^{\circ}35'$ E. $122^{\circ}20'$), Buton Strait. In 559 fathoms. December 16, 1909. Length 76 mm. Type.

Bathytroctes antillarum (Goode and Bean)

Bathytroctes (Talismania) antillarum

Goode and Bean, Oceanic Ichth., 1895, p.

44, N. $28^{\circ}38'30''$ W. $87^{\circ}2'$, 420 fathoms, Gulf of Mexico.

Bathytroctes antillarum Goode and Bean, Oceanic Ichth., 1895, pl. 14, fig. 49 (type).

Talismania antillarum Jordan and Evermann,

Bull. U. S. Nat. Mus., no. 47, pt. 1, 1896, p.

455 (compiled).

Depth $5\frac{7}{8}$; head $5\frac{1}{4}$, width 3.

Snout $3\frac{1}{2}$ in head from snout tip to eye; orbit $3\frac{1}{4}$; eye 4, $1\frac{1}{4}$ in snout, twice interorbital; maxillary reach $\frac{1}{5}$ in eye, expansion $1\frac{2}{3}$ in

eye, length $2 \frac{3}{5}$ in head, interorbital 2 in eye, very low, depressed, nearly level; opercle above with 2 keels, approximate above in front. Gill rakers $7+20$, lanceolate, slender, 2 in eye or nearly 4 times gill filaments.

Scales 43 in lateral line to caudal base; 5 above, 5 below, 24 predorsal forward to occiput.

Bases of vertical fins scaly.

Median, well developed, moderate, trenchant predorsal keel nearly forward to occiput, though less marked anteriorly. Scales deciduous,

all lost.

D. V, 13, I, rays broken, first branched ray $2\frac{4}{5}$ in total head length; A. IV, 16, I, first branched ray $2\frac{1}{4}$, fin origin opposite dorsal origin; caudal damaged, apparently forked, rudimentary rays 10 above or below, moderate; least depth of caudal peduncle $3\frac{1}{2}$; pectoral $2\frac{1}{3}$; ventral $2\frac{4}{5}$?

Head blackish. Iris neutral black, pupil ivory white. Inside gill opening and mouth blackish. Body rusty brown, dusky or neutral dusky on belly. Paired fins dark

164

brown, vertical fin light, paler
terminally.

Gulf of Mexico.

43739 U.S.N.M. N. $28^{\circ}38'30''$ W. $87^{\circ}2'$.

In 420 fathoms. Albatross Station 2394.

March 13, 1885. Length 136 mm. Type.

Bathytroctes hatai new species

Depth 5 to $5\frac{1}{5}$; head $3\frac{1}{2}$ to $3\frac{2}{3}$, width $2\frac{1}{2}$ to $2\frac{2}{3}$. Snout $3\frac{1}{3}$ to $3\frac{2}{5}$ in head; eye $3\frac{1}{3}$ to 4, equals snout, twice or more width of interorbital; maxillary reaches $\frac{1}{4}$ to $\frac{1}{3}$ in eye, expansion 2 to $2\frac{1}{8}$ in eye, length $2\frac{3}{5}$ to $2\frac{2}{3}$ in head; interorbital $2\frac{1}{2}$ to $2\frac{4}{5}$, concave, narrow. Gill rakers $9 + 20$, lanceolate, slender, $2\frac{1}{3}$ in eye; gill filaments $\frac{1}{3}$ gill rakers.

Scales 45 or 46 in lateral line to caudal base; 7 above, 7 below, 29 or 30 predorsal forward to

occiput. Only occiput scaly, rest of head naked. Vertical fin bases scaly. Scales with 12 or 13 basal radiating striae; circuli very fine.

D. VII or VIII, 12, I to 14, I, first branched ray 2 to $2\frac{1}{2}$ in head, fin origin opposite anal origin; A. III or IV, 16, I or 17, I, first branched ray $2\frac{1}{8}$ to $2\frac{3}{5}$; caudal $1\frac{1}{5}?$ to $1\frac{1}{2}?$, apparently well forked, rudimentary rays 14 or 15 above or below; least depth of caudal peduncle $3\frac{2}{5}$ to $3\frac{2}{3}$; pectoral $1\frac{4}{5}$ to $2\frac{1}{8}$, reaches ventral; ventral 2 to $2\frac{2}{3}$, inserted

much nearer snout tip than caudal base.

Head largely dusky black to blackish. Iris slate black, pupil ivory white. Inside mouth and gill opening blackish. Body brown, belly tinged blackish. Fins dull brown.

Diagnosis. Resembles Bathytroctes antillarum (Goode and Bean) though with more gill rakers.

Type no.

U. S. N. M.

4304. D. 5667. Onkona Point,
S. 5° W., 11 miles (S. $2^{\circ} 56' E.$ $118^{\circ} 47' 30''$),
Macassar Strait. December 29, 1909.

(In 367 fathoms.) Length 154 mm.

2254, 2256, 2257. D. 5463. Vialat
Point Light, S. $74^{\circ} E.$, 3.9 miles (N. $13^{\circ} 40' 57'' E.$ $123^{\circ} 57' 45''$), east coast of Luzon.
In 300 fathoms. June 16, 1909. Length
150 to 172 mm. Type largest example.

Bathytroctes aequatoris (Goode and Bean)

Bathytroctes (Talismania) aequatoris Goode
and Bean, Oceanic Ichth., 1895, p. 44.

N. $1^{\circ}3'$ W. $80^{\circ}15'$, 741 fathoms, off Ecuador.

Bathytroctes aequatoris Goode and Bean,
Oceanic Ichth., 1895, pl. 14, fig. 50 (type).

Talismania aequatoris Jordan and Evermann,
Bull. U. S. Nat. Mus., no. 47, pt. 1, 1896, p.

456 (compiled).

Depth 5; head $3\frac{1}{5}$, width $2\frac{3}{5}$.

Snout $3\frac{1}{3}$ in head from snout tip to
eye; orbit $4\frac{3}{4}$; eye 7, $2\frac{1}{5}$ in snout,
 $1\frac{3}{4}$ in interorbital, $1\frac{1}{4}$ in bony
interorbital; maxillary reaches
slightly behind eye, expansion

equals eye, length 2 in head from snout tip; interorbital $4\frac{3}{5}$, bony interorbital $5\frac{3}{4}$, low, with broad deep groove reaching occiput; opercle with oblique lines. Gill rakers $6 + 19$, lanceolate, equal eye; gill filaments $\frac{1}{5}$ gill rakers.

Scales 46 tubular in lateral line to caudal base, which well marked with continuous deep groove.

Scales very deciduous, all now fallen.

D. V, 16, rays broken, fin height 3? in total head length; A. IV, 17, rays broken, fin height low; caudal damaged, evidently forked, rudimentary

rays about 12, not prominent;
least depth of caudal peduncle 5;
pectoral small, low, damaged,
apparently subequal with orbit;
ventral about like pectoral,
inserted little nearer mandible
tip than caudal base. Head
blackish, damaged, below lost skin
whitish. Iris slate black, pupil
whitish. Body blackish brown.
Fins all pale. Inside mouth
and gill opening blackish.

Eastern Pacific

44085 U. S. N. M. N. $10^{\circ} 3'$ W. 80°

15¹ In 741 fathoms. Albatross

Station 2793. Length 341? mm.

In poor condition. Type.

Bathytroctes homopterus Vaillant

Bathytroctes homopterus Vaillant, Exped.
Travailleur et Talisman, Poiss., 1888,

p. 153, pl. 12, figs. 1a-b. Banc d'Arguin,

1113 meters.

Bathytroctes (Talismania) homopterus

Goode and Bean, Oceanic Ichth., 1895, p.

43 (copied). — Norman, Discovery Rep., vol.

2, 1930, p. 269, fig. 2 (S. $15^{\circ}55'$ E. $10^{\circ}35'$, 600

to 700 meters; N. $13^{\circ}25'$ W. $18^{\circ}22'$, 900 meters;

type).

Idiacanthus antrostomus Gilbert

Idiacanthus antrostomus Gilbert, Proc. U.

S. Nat. Mus., vol. 13, 1890, p. 54. Off

California coast, in 603 fathoms. —

Goode and Bean, Oceanic Ichth., 1895,

p. 516 (reference). ~~Gurney, Mem. Mus.~~

~~Comp. Zool., vol. 24, 1899, p. 280 (~~

~~unpubl.)~~ — Parr, Bull. Bingham

Oceanogr. Collection, vol. 3, art. 3, Dec. 30,

1927, p. 118 (note).

Idiacanthus atlanticus Brauer, Deutsch.

Tiefsee Exped. Valdivia, vol. 15, Tiefsee-

Fische, 1906, p. 62, text fig. 21 (head).

West coast of South Africa in S. Lat. 25°

$25'3''$ E. Long. $6^{\circ}12'4''$, in 2000 meters;

Depth $4\frac{1}{4}$; head $3\frac{1}{5}$. Snout $3\frac{2}{5}$ in head from snout tip; eye $3\frac{1}{8}$, little greater than eye, equals interorbital; maxillary reaches $\frac{1}{2}$ or little beyond in eye, expansion 3 in eye, length 2 in head from snout tip; premaxillary somewhat protruding, bearing 2 or 3 forwardly directed teeth anteriorly, ^{more prominent in young,} inner longest, followed by series of smaller conical teeth; maxillary toothed; opercle above with series of diverging ridges ending in feeble

pointed projections; pointed
membranous process above clavicle.
Lower gill rakers 20.

Scales 65 to 75 in lateral line;
13 above, 13 below.

D. 18 to 20, fin height $3\frac{2}{5}$ in
total head length; A. 16 to 18, origin
about opposite first eighth of dorsal
base, fin height $5\frac{1}{8}$; caudal $1\frac{1}{3}$,
deeply forked; least depth of
caudal peduncle $3\frac{1}{8}$; pectoral 2;
ventral $4\frac{7}{8}$. Length 47 to 100 mm.
(Norman.)

Atlantic Ocean. The type was
161 mm.

Subgenus Bathytroctes Günther

Bathytroctes zugmayeri new species

Depth 5; head $2 \frac{3}{5}$, width $2 \frac{3}{5}$.
Snout $4 \frac{1}{5}$ in head from snout tip;
eye $3 \frac{1}{6}$, greater than snout or
interorbital; maxillary reaches $\frac{4}{5}$
in eye, expansion 2 in eye, length
 $1 \frac{9}{10}$ in head from snout tip; bony
interorbital $2 \frac{1}{2}$; opercle with
dozen radiating striae. Gill rakers
 $10 + 20$?, slender, lanceolate, nearly
4 times gill filaments or $1 \frac{4}{5}$ in eye.

Scales 58? in lateral line to
caudal base; 7 above, 7 below, 34?
predorsal forward to occiput. Head
naked. Scales apparently on bases

of vertical fins. Scales very caducous,
most all fallen. Lateral line
axial along side of body.

D. III, 13, I, third branched ray $2\frac{4}{5}$
in total head length, fin origin
midway between upper cleft of gill
opening and caudal base; A. III, 10, I,
third ray $2\frac{1}{4}$, fin origin opposite
base of tenth dorsal ray; caudal $1\frac{1}{3}$?
forked, rudimentary rays 5 or 6?
above or below, inconspicuous; least
depth of caudal peduncle $3\frac{1}{4}$; pectoral
 $1\frac{1}{4}$, uppermost branched ray longest
and slender; ventral evidently lost.

Head blackish brown. Iris

black, pupil ivory white. Inside mouth and gill opening black. Body dark brown. Fins brown.

Diagnosis. Allied with Bathytroctes squamulosus Gilcock but with larger maxillary as in that species it only reaches about opposite middle of eye. My specimen also shows a more advanced anal. Its character of affiliation seems to be its long pectoral. Bathytroctes squamulosus shows a more forward vent, which about opposite middle of dorsal base while my species shows it about last $\frac{2}{5}$ of dorsal base and

close before anal fin origin.

Type No.

U. S. N. M.

10231. D. 5654. Cape Tabako, N.

17°E., 21.5 miles (S. 3°42'E. 120°45'50"),

Gulf of Boni, Celebes. In 805 fathoms.

December 18, 1909. Length 235 mm.

Type.

Bathytroctes

181

Rouleina harperi new species

Depth $4\frac{1}{2}$ to $5\frac{1}{5}$; head $2\frac{7}{8}$ to $3\frac{1}{4}$,
width $2\frac{1}{3}$ to $2\frac{3}{4}$. Snout $3\frac{1}{4}$ to $4\frac{1}{3}$
in head from snout tip ^{to eye} orbit $4\frac{1}{3}$ to 5; eye $4\frac{3}{4}$ to 6,
 $1\frac{1}{2}$ to 2 in snout, slightly greater
than interorbital in young to $1\frac{1}{8}$ in
interorbital with age; maxillary
reaches opposite or little beyond
hind eye edge, expansion 1 to $1\frac{1}{5}$
in eye, length $1\frac{7}{8}$ to 2 in head
from snout tip; ~~orbit $4\frac{1}{3}$ to 5~~
mandible ends in front with short
spur somewhat projecting downward;
interorbital $5\frac{3}{5}$ to 6, level in front
to slightly concave behind. Gill

rakers 7+17, lanceolate, compressed,
equal eye or 3 times gill filaments.

Scales 50 in lateral line to
caudal base, mostly damaged. Scales
not evident, skin with fine parallel
longitudinal striae.

D. VII, 13, I, first branched^h ray
 $2\frac{4}{5}$? in total head length; A. III, 7, I,
third branched ray $2\frac{2}{3}$, fin origin
rather close behind dorsal origin;
caudal $1\frac{4}{5}$, deeply forked, ends
in slender pointed lobes, 12 rudimentary
rays above and below, inconspicuous,
apparently not extending forward
over $\frac{3}{5}$ of extent of caudal peduncle.

to hind depressed tips of dorsal and anal; least depth of caudal peduncle $5\frac{4}{5}$; pectoral $5\frac{1}{5}$; ventral $4\frac{2}{5}$.

Head blackish brown to black.

Iris neutral black, pupil ivory white. Body dark seal brown. Fins dusky or blackish.

Diagnosis. Related to Rouleina nudus (Brauer) but differs in the greatly smaller eye, conspicuously broader maxillary and shorter paired fins. Compared with Brauer's figure the dorsal and anal bases are shown $1\frac{2}{5}$ to $1\frac{1}{3}$ in space posteriorly

or to caudal base, whereas in my specimens they are about equal. Most of my materials are poorly preserved so that it is impossible to render complete details in any of the specimens.

Type no. U. S. N. M.
For Dr. Francis Harper now of Philadelphia, to whom I am indebted for various natural history details.

D. 5610. Batu Daka Island (S.), N. 87° W., 20.9 miles (S. $0^{\circ}36'$ E. $122^{\circ}1'$), Gulf of Tomini, Celebes. In 678 fathoms.

November 19, 1909. Length 332 mm.
3983. D. 5660. Cape Lassa, S. 88° W., 20.5 miles (S. $5^{\circ}36'30''$ E. $120^{\circ}49'$), Flores Sea. In 692 fathoms. December 20, 1909. Length 280? mm. In poor preservation.

3809, 3981, 3982, 4230. D. 5655.

Cape Tabako, N. 7° E., 13 miles (S. $3^{\circ} 34' 10''$ E. $120^{\circ} 50' 30''$), Gulf of Boni, Celebes. In 608 fathoms. December 18, 1909. Length 250 to 270 mm. Type, smallest specimen.

4093. D. 5656. Olang Point, N. 67° W., 14.5 miles (S. $3^{\circ} 17' 40''$ E. $120^{\circ} 36' 45''$), Gulf of Boni, Celebes. In 484 fathoms. December 19, 1909. Length 238? mm.

2255. D. 5463. Sialat Point Light, S. 74° E., 3.9 miles (N. $13^{\circ} 40' 57''$ E. $123^{\circ} 57' 45''$), east coast of Luzon. In 300 fathoms. June 16, 1909. Length 177 mm.

~~*Bathypagrus*~~
~~*Rosalia*~~
Bajacalifornia *burragei* (Townsend and Nichols)
Bajacalifornia *burragei* Townsend and Nichols,
 Bull. Amer. Mus. Nat. Hist., New York,
 vol. 52, 1925, p. 8, fig. 3. Off Todos Santos
 Bay, Lower California, 590 fathoms.

Depth 6; head 3, width 3. Snout
 $3\frac{1}{3}$ in head from snout tip; eye $3\frac{1}{3}$,
 equals snout, greatly exceeds
 interorbital; maxillary reaches
 $\frac{2}{5}$ in eye, expansion $1\frac{7}{8}$ in eye,
 length $2\frac{1}{6}$ in head from snout tip;
 interorbital very narrow, level,
 $2\frac{1}{2}$ in eye; opercle with 2 strong
 oblique keels radiating from
 upper front portion. Gill rakers

9 + 25, lanceolate, slender, $1\frac{2}{3}$ in eye; gill filaments $\frac{2}{5}$ of gill rakers.

Scales 50 in lateral line to caudal base; 5 above, 5 below, 30 predorsal forward to occiput.

Scales very caducous, all fallen, apparently present on caudal base.

D. 15, rays apparently short, all now broken, fin origin nearly midway between hind preopercle edge and caudal base, fin base $2\frac{1}{8}$ in total head length; A. 11, rays broken, appear short, fin origin at last $\frac{2}{5}$ in dorsal base,

fin base $2\frac{3}{5}$ in total head length;
caudal broken, apparently forked,
rudimentary rays 9 above or below,
little prominent; least depth of
caudal peduncle $5\frac{1}{8}$; pectoral $3\frac{1}{5}$?,
short; ventral $3\frac{1}{2}$, inserted little
nearer front eye edge than caudal
base.

Head black. Eye neutral black.
Inside mouth and gill opening black.
Body dusky or dark blackish brown,
especially belly. Fins brownish.

Off Lower California.

87553 U.S.N.M.

In 590 fathoms. Albatross Station 5674.
March 8, 1911. Length 125 mm. Type.

Bathytroctes alvifrons (Garman)

Bathytroctes alvifrons (Garman, Mem.

Mus. Comp. Zool., vol. 24, 1899, p. 286,

pl. 58, figs. 2 - a. N. $6^{\circ}21'$ W. $80^{\circ}41'$; 1793 fathoms; N. $2^{\circ}34'$ W. $92^{\circ}6'$; 1360 fathoms, Gulf of Panama.

Depth $5\frac{1}{4}$; head 3. Snout ^{to eye} $3\frac{1}{8}$
in head; eye $5\frac{1}{8}$, orbit 4, eye $1\frac{3}{5}$
in snout, twice interorbital;
maxillary reaches hind eye edge,
expansion 2 in eye; length $2\frac{1}{5}$ in
head; teeth small, slender, uniserial
on premaxillaries, maxillaries, dentaries,
and palatines, 1 to several each side

of vomer; interorbital depressed.
Gill rakers slender, less than half
eye.

Scales 44 in lateral line; 4
above, 4 below.

D. 13 or 14, fin base $2\frac{1}{4}$ in
head and most all before anal;
A. 11 or 12, fin base $3\frac{2}{5}$; caudal
damaged, deeply emarginate; least
depth of caudal peduncle $3\frac{2}{3}$;
paired fins damaged, both evidently
small.

Black outside and on linings of
body cavities. Length 230 mm. (Garman.)
Gulf of Panama.

Bathytroctes inspector Garman
Bathytroctes inspector Garman, Mem.
 Mus. Comp. Zool., vol. 24, 1899, p. 288,
 Pl. M., fig. 1. N. $6^{\circ}10'$ W. $83^{\circ}6'$, 1471 fathoms.

Depth $4\frac{7}{8}$; head $3\frac{1}{3}$, width $2\frac{2}{5}$.
 Snout $3\frac{2}{3}$ in head; ^{to eye; orbit $2\frac{3}{5}$;} eye $3\frac{7}{8}$, equals
 snout, greater than interorbital;
 maxillary reaches opposite hind eye
 edge, expansion $2\frac{2}{5}$ in eye, length 2
 in head; jaws equal; bony interorbital
 (damaged) about $2\frac{2}{3}$? in eye. Gill
 rakers $5 + 15$; lanceolate, $\frac{1}{2}$ of eye or
 twice gill filaments.

Scales 47 in lateral line to

caudal base; 5 above, 6 below,
24 predorsal forward to occiput.
No scales now remaining in lateral
line, which apparently axial along
side of body. Scales all very caducous,
most all fallen, thin, cycloid.

D. III, 12, I, origin little behind
ventral origin or nearly midway
between upper cleft of gill opening
and caudal base, fin height about
equals eye; A. III, 8, I, inserted behind
dorsal base, fin height like dorsal;
caudal damaged, emarginate,
rudimentary rays 7 or 8 above or
below; least depth of caudal peduncle

$3\frac{3}{4}$; pectoral 3; ventral 3,
inserted midway between hind eye
edge and caudal base.

Head black. Iris blackish,
~~pupil~~ pupil ivory white. Body brown, fins
all dusky. Inside mouth and gill
opening black.

Gulf of Panama. Garman
only mentions "a female ten inches in
length" and Station 3361.

57894 U.S.N.M. N. $6^{\circ}10'$ W. $83^{\circ}6'$.

In 147 fathoms. Albatross Station 3361.

February 25, 1891. Museum of Comparative
Zoology. Length 285? mm. Very poorly
preserved.

Bathytroctes macrolepis Günther

Bathytroctes macrolepis Günther, Rep.

Voy. Challenger, vol. 22, 1887, p. 225,

pl. 57, fig. B. ^(head) North of Celebes (^{Lat.} $2^{\circ} 55'$

E. Long. $124^{\circ} 53'$), in 2150 fathoms. —

Goode and Bean, Oceanic Ichth.,

1895, p. 41, ^(not) fig. 44 (compiled) — Weber

and Beaufort, Fishes Indo-Austral.

Archipelago, vol. 2, 1913, p. 103 (copied).

{ — ? Alcock, Cat. Deep-Sea Fishes Indian
Mus., 1899, p. 174 (Andaman Sea).

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

195

Depth $4\frac{3}{4}$; head $3\frac{3}{4}$, width $2\frac{1}{5}$. Snout 4 in head from snout tip to eye; orbit $2\frac{3}{4}$; eye $3\frac{3}{5}$, greater than snout or interorbital; maxillary reaches $\frac{2}{3}$ in eye or opposite hind pupil edge, expansion $1\frac{7}{8}$ in eye, length 2 in head from snout tip; interorbital $6\frac{1}{2}$, concave like cranium. Gill rakers $9+19$, lanceolate, $1\frac{4}{5}$ in eye, gill filaments $\frac{2}{5}$ of gill rakers.

Scales 53 in lateral line to caudal base; 7 above, 7 below, 27 predorsal forward to occiput.

Bases of vertical fins scaly. Head

196

largely scaly. Lateral line axial along side of body, complete, large tubes conspicuous, each well exposed. Scales all very thin, cycloid, caducous, most all fallen.

D. V, 11, I, fin origin nearly ~~opposite~~ midway between hind eye edge and caudal base, third branched ray $1\frac{4}{5}$ in total head length; A. III, 13, I, fourth branched ray 2, origin about opposite last fourth of dorsal base; caudal $1\frac{1}{4}$, deeply forked, slender lobes pointed, 7 to 9 rudimentary rays above or below; least depth of caudal peduncle $2\frac{4}{5}$; pectoral

$1\frac{3}{5}$, reaches $\frac{1}{8}$ to ventral; ventral reaches $\frac{4}{5}$ to anal, length $1\frac{3}{5}$ in total head length, fin origin slightly nearer anal than pectoral origin.

Head blackish brown. Iris neutral black, pupil ivory white. Body brown. Fins all slightly paler brown than body. Inside gill opening and mouth blackish.

Andaman Sea?, East Indies.

My specimen agrees with Günther's figure of the head.

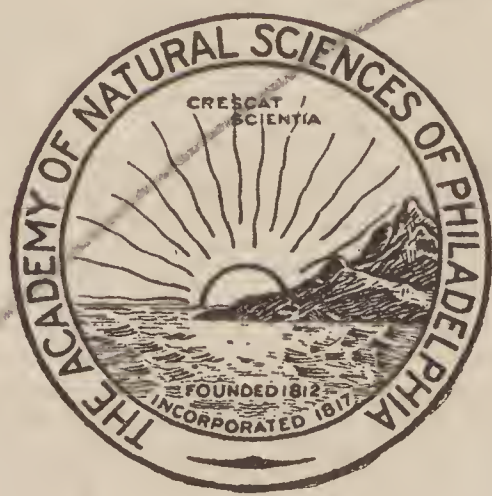
4233. D. 5655. Cape Tabako, N. 7°E, 13 miles (S. 3°34'10"E. 120°50'30"), Gulf of Boni, Celebes. In 608 fathoms. December 18, 1909. Length 188 mm.

Bathytroctes calcaratus Weber

Bathytroctes calcaratus Weber, Siboga
 Exped., vol. 57, Fische, 1913, p. 11, pl. 4,
 fig. 5-a. Macassar Strait (N. Lat. 85°
 East Long. $119^{\circ}29.5'$), in 724 meters;
 Ceram Sea (N. Lat. $173.3^{\circ}27'$ East. Long.
 $131^{\circ}5'$), in 567 meters. — Weber and
Beaufort, Fishes Indo Austral.
 Archipelago, vol. 2, 1913, p. 102, fig. 35
 (type).

Depth $5\frac{1}{2}$; head $3\frac{1}{3}$, width
 $2\frac{3}{5}$. Snout 3 in head from snout
 tip; eye $5\frac{4}{5}$, $1\frac{4}{5}$ in snout, equals
 interorbital; maxillary reaches
 opposite hind eye edge, expansion

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

$1\frac{2}{5}$ in eye, length 2 in head from snout tip; mandible with terminal downward directed spine or spur; interorbital $5\frac{4}{5}$, with deeply concave median area extending to occiput; opercle with numerous fine radiating striae. Gill rakers $6 + 18$, lanceolate, $1\frac{1}{4}$ in eye, twice gill filaments.

Scales 58 in lateral line to caudal base; 9 above, 8 below, 40 predorsal forward to occiput. Bases of vertical fins finely scaled. Scales with circuli mainly as minute, parallel, very numerous, largely longitudinal

striae, over all many irregular circular ridges or grooves, greatly suggestive of lines on outer surface of clam shell.

D. V, 12, I, first branched ray $2\frac{1}{2}$ in total head length, fin origin midway between upper inner edge of gill cleft and caudal base; A. IV, 11, I, second branched ray $2\frac{2}{5}$, fin origin opposite middle of dorsal base; caudal $1\frac{3}{5}$?, forked, 13 to 15 moderate rudimentary rays above or below; least depth of caudal peduncle $3\frac{7}{8}$; pectoral $2\frac{4}{5}$, reaches about $2\frac{3}{4}$ to ventral; ventral inserted midway between caudal base

and snout tip, reaches $1\frac{4}{5}$ to anal, length $2\frac{4}{5}$ in total head length.

Head blackish. Iris slate black, pupil ivory white. Inside mouth and gill opening blackish. Body dark brown, scale pockets with dusky and belly tinged blackish. Fins brownish, with dusky tints.

East Indies. My example agrees with Weber's crude figure largely, though it does not show the breast so finely scaled.

10070. D. 5284. Malavatu Island (S.), N. 46° W., 14.25 miles (N. $13^{\circ}42'05''$ E. $120^{\circ}30'45''$), China Sea vicinity of southern Luzon. In 422 fathoms. July 20, 1908. Length $2\frac{4}{5}$? mm.

Bathytroctes squamosus Alcock

Bathytroctes squamosus Alcock, Ann.

Mag. Nat. Hist., series 6, vol. 6, 1890, p. 300.

About 75 miles west of Goa Coast,

Laccadive Sea (N. Lat. $15^{\circ} 2'$ E. Long. $72^{\circ} 34'$), in 740 fathoms; Illustrat. Zool.

Investigator, pt. 1, 1892, pl. 5, fig. 1. —

Journ. Asiatic Soc. Bengal, vol. 65, pt. 2.

Goode and Bean, Oceanic Ichth., 1895, p. 40

(reference). — Alcock,

DO

740 fathoms). — Weber, Siboga Exped., vol. 57, Fische, 1913, p. 11 (Bali Sea in

1018 meters). — Weber and Beaufort,

Fishes Indo Austral. Archipelago,

vol. 2, 1913, p. 101 (Bali Sea).

Bathytroctes squamosus Alcock

Bathytroctes squamosus Alcock, Ann.

Mag. Nat. Hist., series 6, vol. 6, 1890, p. 300.

About 75 miles west of Goa Coast,

Laccadive Sea (N. Lat. $15^{\circ} 2'$ E. Long. $72^{\circ} 34'$), in 740 fathoms; Illustrat. Zool.

Investigator, pt. 1, 1892, pl. 5, fig. 1. —

Journ. Asiatic Soc. Bengal, vol. 65, pt. 2,

1896, p. 334 (off Goa coast in 740 fathoms);

Cat. Deep-Sea Fishes Indian Mus., 1899,

p. 173 (Arabian Sea off the Laccadives,

740 fathoms). — Weber, Siboga Exped.,

vol. 57, Fische, 1913, p. 11 (Bali Sea in

1018 meters). — Weber and Beaufort,

Fishes Indo Austral. Archipelago,

vol. 2, 1913, p. 101 (Bali Sea).

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

203

Depth 4; head $3\frac{1}{2}$. Snout $4\frac{1}{3}$
in head from snout tip; eye $2\frac{2}{3}$,
greater than snout; maxillary reaches
 $\frac{1}{2}$ in eye, expansion $2\frac{1}{3}$ in eye, length
 $2\frac{1}{3}$ in head from snout tip; teeth
small, even, acute, uniserial, recurved
in premaxillaries, dentaries, vomer and
palatines, procurved on maxillaries;
nostrils large, close before eye.

Gill rakers long, close set.

Scales 50 in lateral line; 7
above, 7 below. Fins not scaly,
except caudal base.

D. IV, 14, first branched ray $2\frac{1}{8}$ in total head length, most all of base before anal; A. III, 15, first branched ray $3\frac{1}{8}$; caudal $1\frac{1}{4}$, deeply forked; least depth of caudal peduncle $2\frac{1}{2}$; pectoral $1\frac{2}{5}$; ventral $2\frac{2}{3}$.

Head deep black. Buccal membrane and peritoneum black. Body pinkish brown. Fins transparent gray. Length 258 mm. (Alcock.) Indian and Pacific Oceans.

Bathytroctes grimaldii Zugmayer

Bathytroctes grimaldii Zugmayer,
Bull. Inst. Océanogr. Monaco, no. 193,

Jan. 20, 1911, p. 1. N. $37^{\circ}38'$ W. $10^{\circ}53'$, 4900
meters, off Portugal; Rés. Camp. Sci.

Monaco, vol. 35, 1911, p. 6, pl. 1, fig. 2 (type).

Depth $4\frac{3}{4}$; head $3\frac{1}{3}$. Snout
4 in head from snout tip; eye $3\frac{1}{8}$,
greater than snout; maxillary
reaches $\frac{3}{4}$ in eye, expansion 2
in eye, length $1\frac{9}{10}$ in head from
snout tip; mandible slightly protrudes,
teeth very small, uniserial, on
premaxillaries, maxillaries and
dentaries, and group anteriorly on

palatines; interorbital low.

Scales 75 in lateral line; 8 above, 8 below. Caudal base scaly.

D. 13, origin slightly nearer ventral than anal origin, first ray $2\frac{4}{5}$ in total head length; A. 11, origin opposite middle of dorsal base, fin height $3\frac{2}{3}$; caudal $1\frac{7}{8}$, well forked; least depth of caudal peduncle 3; pectoral $1\frac{3}{4}$, reaches ventral; ventral $1\frac{9}{10}$.

Black, head violet black.

Length 165 mm.

Eastern Atlantic.

(Zugmayer.)

207

Bathytroctes melanocephalus Vaillant

Bathytroctes melanocephalus Vaillant,
Expéd. Sci. Travailleur et Talisman,
Pois., 1888, p. 155, pl. 11, figs. 3, a-b.

Coasts of Morocco, 2200 to 2600 meters;
coasts of Soudan, 1435 meters; Banc d'
Arguin, 1617 meters. — Goode and Bean,
Oceanic Ichth., 1895, p. 43 (compiled).

Depth $5\frac{1}{5}$; head $2\frac{7}{8}$. Snout
3 in head from snout tip; eye 6, 2
in snout; maxillary reaches slightly
beyond eye, expansion $1\frac{2}{5}$ in eye,
length $1\frac{4}{5}$ in head from snout tip;
premaxillary teeth elongate, fine,
conic, uniserial; opercle with 7

radiating ridges above extended down posteriorly.

Scales 105 in lateral line; tubes 64 in lateral line; 13 above, 10 below to anal.

D. 14, fin height $4\frac{7}{8}$ in ^{total} head, fin base entirely before anal origin; A. 11, fin height $4\frac{1}{2}$; caudal $1\frac{4}{5}$, slightly emarginate; least depth of caudal peduncle $3\frac{3}{4}$; pectoral $4\frac{4}{5}$; ventral $4\frac{4}{5}$.

Grayish green. Head deep blue black. Iris blue gray, pupil black. Length 108 mm. (Vaillant.)

Eastern Atlantic.

Bathytroctes alveatus Garman

Bathytroctes alveatus Garman,

Mem. Mus. Comp. Zool., vol. 24, 1899,

p. 287, pl. 58, fig. 1, N. $3^{\circ}9'W. 82^{\circ}8'$,
1132 fathoms; S. $0^{\circ}36'W. 86^{\circ}46'$, 1322
fathoms, Gulf of Panama.

Depth 5; head $2\frac{3}{4}$. Snout ^{to eye}
_{in head from snout tip} $2\frac{9}{10}$; orbit $5\frac{1}{6}$; eye 7, $2\frac{2}{5}$ in
snout, wide as interorbital;
maxillary reaches slightly behind
orbit, expansion equals eye, length
 $1\frac{4}{5}$ in head from snout tip; teeth
small, rather strong, subconic, hooked,
uniserial on premaxillaries, maxillaries,

dentaries and palatines, 1 to 3
fang like teeth each side of
vomer; interorbital low. Gill
rakers 5 + 16, slender, $\frac{3}{4}$ eye.

Scales 70 in lateral line, 10
above, 10 below.

D. 15 or 16, fin height 5 in head,
fin base entirely before anal; A. 11,
fin height 5; caudal 2, well
emarginate; least depth of caudal
peduncle $4\frac{4}{5}$; pectoral 3; ventral $3\frac{2}{5}$.

Surface and interior linings black.
Length 191 mm. (Garman)

Gulf of Panama.

Bathytroctes stomias (Gilbert)

Bathytroctes stomias Gilbert, Proc. U. S.

Nat. Mus., vol. 13, 1890, p. 53. Albatross

Station 3074, 877 fathoms, off Oregon. —

Goode and Bean, Oceanic Ichth., 1895, p.

40 (reference). — Jordan and Evermann,

Bull. U. S. Nat. Mus., no. 47, pt. 1, 1896, p.

454 (compiled).

Marcetes stomias Townsend and Nichols,

Bull. Amer. Mus. Nat. Hist., New York,

vol. 52, art. 1, May 16, 1925, p. 10 (southwest
of San Diego, 1076 fathoms).

212

Depth $5\frac{1}{8}$ to $5\frac{1}{5}$; head $3\frac{1}{2}$ to $5\frac{1}{4}$,
width $2\frac{3}{4}$ to $2\frac{4}{5}$. Snout $3\frac{1}{3}$ to $3\frac{7}{8}$
in head as measured to eye; orbit $3\frac{3}{4}$;
eye $5\frac{7}{8}$ to $6\frac{2}{3}$, $1\frac{2}{3}$ to 2 in snout, $1\frac{1}{3}$ to
 $1\frac{2}{5}$ in interorbital, subequal with
bony interorbital; maxillary reaches
 $\frac{3}{4}$ to $\frac{4}{5}$ eye diameters behind eye,
expansion $1\frac{1}{5}$ to $1\frac{1}{4}$ in eye, length $1\frac{3}{4}$
to $1\frac{4}{5}$ in head; interorbital $4\frac{7}{8}$ to 5,
low to depressed, with broad deep
groove extending on cranium nearly to
occiput, bony interorbital $7\frac{1}{5}$. Gill
rakers $5+12$, lanceolate, 1 to $1\frac{2}{3}$ in eye;
gill filaments $\frac{1}{3}$ to $\frac{2}{5}$ of gill rakers.
Scales 85 to 95 along close above

lateral line to caudal base, tubes
60 in lateral line to caudal base
and 3 more on latter; 8 to 10 above,
9 to 11 below, 55 to 65 predorsal forward
to occiput. Bases of vertical fins with
rather small scales. Scales very caducous,
all fallen. Head naked.

D. III, 16, I or III, 17, I, first branched
ray $3\frac{1}{2}$? in head, fin origin midway
between gill opening and caudal
base; A. III, 12, I or III, 13, I, first
branched ray $4\frac{2}{5}$?, fin origin
opposite first to last $\frac{2}{5}$ of dorsal
fin base; caudal broken, forked,
rudimentary ray 12 to 14 above or

below; least depth of caudal peduncle $3\frac{3}{5}$ to $3\frac{2}{3}$; pectoral 4?, weak; ventral $4\frac{3}{4}$?, inserted little before dorsal or midway between hind maxillary end and caudal base.

Head black. Body dark sienna brown, scale pockets dusky to blackish. Body sometimes tan brown, sooty about head and breast. Iris neutral dusky to blackish, pupil ivory white. Inside mouth and gill opening blackish. Fins brownish to dusky.

Off California and Oregon.

35594 U. S. N. M. N. $39^{\circ} 43' 30''$ W.
 $69^{\circ} 23'$. In 1050 fathoms. Albatross
Station 2220. August 23, 1884.

Length 510 mm.

43081 U. S. N. M. N. $47^{\circ} 22' W.$ $25^{\circ} 48'$
 $30''$. In 877 fathoms. Albatross
Station 3074. June 29, 1889. Length
318 mm. Type.

Bathytroctes rostratus Günther

Bathytroctes rostratus Günther, Ann. Mag. Nat. Hist., series 5, vol. 2, 1878, p. 250. Off

Pernambuco, Brazil, in 675 fathoms; Rep.

Voy. Challenger, vol. 22, 1887, p. 227, pl. 58, fig.

B (type). — Goode and Bean, Oceanic Ichth.,

1895, p. 41 (copied). — Brauer, Deutsch.

Tiefsee Exped. Valdivia, vol. 15, Tiefsee-Fische,

1906, p. 17, pl. 14, figs. 2-3 (off Diego Garcia,

between Seychelles^{and} Zanzibar, Gulf of

Aden, 200 to 1500 meters). — Holt and

Byrne, Dep. Agric. Ireland Fisher.

Sci. Invest., 1905⁽¹⁹⁰⁶⁾, no. 2, p. 45, pl. 4,

figs. 3-5.

217

— Zugmayer, Rés. Camp. Sci. Inst.
Monaco, vol. 35, 1911, p. 5 (N. $43^{\circ}4'W.$ 19°
 $42'$, 1500 meters; between Portugal and
Azores). — Hjort, Depths of the Ocean,
1912, p. 394 (off Morocco; Azores; 3239
meters).

Bathytroctes (Bathytroctes) rostratus
Horman, Discovery Rep., vol. 2, 1930, p. 268,
pl. 2, fig. 3, text fig. 1 (S. $33^{\circ}25'E.$ $6^{\circ}31'$,
1000 meters; S. $33^{\circ}50'$ to $34^{\circ}13'E.$ $16^{\circ}4'$ to
 $15^{\circ}49'$, 350 to 450 meters).

Bathytroctes poroscopus Branner,
Verhand. Deutsch. Zool. Gesell., vol.
12, 1902, p. 43.

2/8

Depth $4\frac{1}{8}$ to $5\frac{1}{4}$; head $3\frac{1}{2}$ to $3\frac{3}{4}$, width $2\frac{1}{4}$ to $2\frac{4}{5}$. Snout to eye $3\frac{7}{8}$ to 4 in head; orbit 3 to $3\frac{1}{8}$; eye $3\frac{7}{8}$ to $4\frac{1}{4}$, equals snout, greater than interorbital; maxillary reaches opposite hind eye edge but not to hind orbital edge, expansion $1\frac{4}{5}$ to $2\frac{1}{4}$ in eye, length $1\frac{7}{8}$ to 2 in head; interorbital $4\frac{3}{5}$ to $4\frac{3}{4}$, broadly concave; opercle with oblique stria. Gill rakers $10 + 25$, lanceolate, slender, $1\frac{1}{2}$ in eye; gill filaments $\frac{3}{5}$ gill rakers.

Scales 80 along and close above lateral line to caudal base; 12 above, 14 below, 50 predorsal. Bases

219

of vertical fins scaly. Head naked. Scales adherent, uniform; circuli fine and converge in 2 groups basally.

D. IV, 16, I, origin little before anal origin, third branched ray $2\frac{1}{4}$ to $2\frac{4}{5}$ in head; A. III, 13, I, third branched ray $2\frac{1}{5}$ to $2\frac{1}{2}$; caudal $1\frac{1}{3}$ to $1\frac{1}{2}$, well forked, rudimentary rays 10 above or below, moderate; least depth of caudal peduncle $2\frac{1}{2}$ to $2\frac{3}{5}$; pectoral 4; ventral $2\frac{1}{5}$ to $2\frac{1}{2}$.

Head black. Iris black, pupil ivory white. Body brown, more or

less dark to sooty about belly, especially anteriorly. Inside mouth and gill openings blackish. Fins brownish.

Atlantic, Indian and Pacific Oceans. Easily known by the pair of anterior denticles at the front of the snout, rather wide set and directed forwards, also smaller denticle at symphysis in front and directed forward.

.4445. D. 5525. Balicasag Island (C.), N. 11° W., 18.2 miles (N. $9^{\circ}12'30''$ E. $123^{\circ}44'7''$), between Siquijor and Bohol. In 405 fathoms. August 11, 1909. Length 130 mm.

4488.

4343 to 4345, ^{4488.} D. 5497. Bantigue Island, N. 64° W., 10 miles (N. $9^{\circ} 7' 15''$ E. $124^{\circ} 59' 30''$), between Leyte and Mindanao. In 960 fathoms. August 3, 1909. Length 78 to 116 mm.

5728. D. 5507. Camp Overton Light, Iligan Bay (Mindanao), S. 1° E., 8.6 miles (N. $8^{\circ} 21' 12''$ E. $124^{\circ} 12' 6''$), northern Mindanao and vicinity. In 425 fathoms. August 5, 1909. Length 76 mm.

D. 5544: Coronado Point, S. 37° W., 21.5 miles (N. $8^{\circ} 16' 30''$ E. $122^{\circ} 20' 30''$), northern Mindanao and vicinity. In 759 fathoms. September 6, 1909. Length 58 mm.

4337 and 4338. D. 5337.

Observatory Island (N.), S. 80° E.,
13.8 miles (N. $11^{\circ}34'$ E. $119^{\circ}26'$), Palawan
Passage. In 43 fathoms. December 20,
1908. Length 110 mm. 2 examples.

Bathytroctes microlepis Günther

Bathytroctes microlepis Günther, Ann.

Mag. Nat. Hist., series 5, vol. 2, 1878, p.
249. South east off Cape St. Vincent,
in 1090 fathoms (Atlantic); Rep. Voy.

— Goode and Bean, Oceanic Ichth., 1895, pp.
42⁵¹⁰₁₁ (compiled). — Alcock,

(Andaman Sea in ...)
Asiatic Soc. Bengal, vol. 65, pt. 2, 1896,
p. 334 (compiled); Cat. Deep-Sea Fishes
Indian Mus., 1899, p. 174 (copied).

Bathytroctes macrolepis (not Günther)

Goode and Bean, Oceanic Ichth., 1895,
pl. 12, fig. 44 (wrongly transposed).

Bathytroctes microlepis Günther

Bathytroctes microlepis Günther, Ann.

Mag. Nat. Hist., series 5, vol. 2, 1878, p.

249. South east off Cape St. Vincent,

in 1090 fathoms (Atlantic); Rep. Voy.

Challenger, vol. 22, 1887, p. 226, pl. 57,

fig. A (type). — ? Alcock, Ann. Mag.

Nat. Hist., series 6, vol. 4, 1889, p. 452

(Andaman Sea in 500 fathoms); Journ.

Asiatic Soc. Bengal, vol. 65, pt. 2, 1896,

p. 334 (compiled); Cat. Deep-Sea Fishes

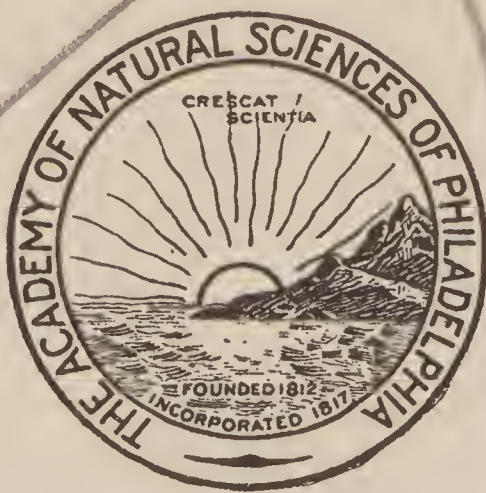
Indian Mus., 1899, p. 174 (copied).

Bathytroctes macrolepis (not Günther)

Goode and Bean, Oceanic Ichth., 1895,

pl. 12, fig. 44 (wrongly transposed).

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

224

Depth 5; head $3\frac{3}{5}$, width 3.
Snout $3\frac{9}{10}$ in head from snout tip;
eye $3\frac{1}{10}$, greater than snout or
interorbital; maxillary reaches $\frac{7}{8}$ in
eye, expansion $2\frac{1}{4}$ in eye, length
2 in head from snout tip; lower
jaw slightly protrudes; teeth feeble,
minute, uniserial, in pairs, on vomer
and palatines; interorbital $6\frac{3}{4}$,
low. Gill rakers 11 + 24, lanceolate,
long.

Scales 70 in lateral line; 9
above, 11 below. Fins scaleless.

D. III, 12, first branched ray $2\frac{1}{6}$ in total head length; A.

III, 15, first branched ray $1\frac{9}{10}$, fin origin near last fourth of dorsal fin base; caudal $1\frac{3}{5}$, well emarginate, rudimentary rays numerous and prominent; least depth of caudal peduncle $3\frac{2}{5}$; pectoral $1\frac{2}{3}$; ventral $2\frac{1}{5}$.

Uniform black. Length 255 mm.
(Günther.)

Atlantic and Indian? Oceans.

Hemabathytroctes new subgenus

Type - Bathytroctes longifilis
Brauer

Head very large, $2\frac{2}{5}$ to caudal.
Maxillary reaches slightly behind
eye. Scales 100. Dorsal origin
slightly before anal origin.
Caudal lobes end in long points.
Pectoral with long filamentous
ray reaching caudal.

Diagnosis. Known by its extended
caudal and pectoral filamentous
rays.

(Ἰνῆρα, thread; Bathytroctes.)

Bathytroctes longifilis Brauer

Bathytroctes longifilis Brauer, Zool.

Anzeiger, vol. 25, no. 668, 1902, p.

277. Gulf of Aden (N. Lat. $13^{\circ}2'8''$
East Long. $46^{\circ}41'6''$), in 1469 meters;
Deutsch. Tiefsee Exp. Valdivia, vol. 15,
Tiefsee - Fische, 1906, p. 18, pl. 14, fig. 4
(type).

Depth $4\frac{2}{5}$; head $2\frac{2}{5}$. Snout
 $3\frac{1}{5}$ in head; eye $5\frac{1}{8}$, $1\frac{2}{3}$ in
snout; maxillary reaches slightly
behind eye, expansion $2\frac{1}{5}$ in
eye; length $1\frac{9}{10}$ in head;
interorbital minute teeth uniserial in pairs, on vomer and palatines; low.

Scales 100 in lateral line;
17 above, 20 below. Fins scaleless.
D. 21, origin slightly before
anal origin, fin height $2\frac{9}{10}$ in head;

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

A. 22, fin height $2\frac{3}{5}$; caudal deeply lunate, lobes ending in long slender points, fin length $2\frac{4}{5}$ in rest of body; least depth of caudal peduncle 5 in head; pectoral with long filamentous ray extended little beyond caudal base, fin length otherwise $2\frac{1}{2}$ in head; ventral $2\frac{1}{3}$.

Gray brown, belly somewhat darker. Head blackish, with bluish sheen above. Eye dark blue. Fins gray, ventral darker, long pectoral filament pale. Length 117 mm. (Brauer)
Gulf of Aden.

229

Genus Narcetes Alcock

Narcetes Alcock, Ann. Mag. Nat.

Hist., series 6, vol. 6, 1890, p. 305. Type
Narcetes erimelas Alcock, monotypic.

Body elongate, usually rather slender, compressed. Head large. Eye moderate or small. Mouth wide, jaws nearly equal. Maxillary reaches from middle of eye to beyond its hind edge. Fine teeth on premaxillaries, dentaries, maxillaries, palatines and vomer, pluriserial on first two and none on tongue. Gill openings wide. Gill membranes united. Gill rakers long. Branchiostegals 7. Pseudobranchiae present. Pyloric coeca moderate.

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

dorsal postmedian, its origin
well before anal origin. Caudal
forked. Paired fins long or short.

The inclusion of several new
forms considerably widen the range
of variation ~~as~~ now understood.

231

Analysis of species

a.¹ harceles. Vent posterior to dorsal origin or close before anal.

b.¹ Scales large, 45 to 50 in lateral line.

c.¹ Maxillary reaches $\frac{1}{2}$ in eye, which $3\frac{1}{2}$ in head. pappenheimi

c.² Maxillary reaches behind eye, which $6\frac{1}{4}$ in head. lloydi

b.² Scales smaller, 64 to 105 in lateral line.

d.¹ Anal origin below middle of dorsal base; pectoral reaches less than $\frac{1}{3}$ to ventral, which inserted well before dorsal origin. affinis

d.² Anal origin below last third of dorsal base; pectoral reaches less than half way to ventral origin, which well before dorsal origin. pluriserialis

d.³ Anal origin entirely behind dorsal fin base; pectoral reaches $\frac{2}{3}$ to ventral origin, which nearly opposite dorsal origin. erimelas.

a.² Alcockella ^{new subgenus.} Vent well before dorsal or but slightly nearer anal origin than pectoral origin; scales 62 in lateral line. garmani

Subgenus harcetes Lilcock

k.² Pectoral less than snout;
dorsal origin slightly
before anal origin. fundulus

i.² st.

Marcetes pappenheimi new species

Depth $6\frac{3}{5}$; head 3, width $2\frac{3}{4}$.
Snout $3\frac{4}{5}$ in head; eye $3\frac{1}{5}$,
greatly exceeds snout or interorbital;
maxillary reaches $\frac{1}{2}$ in eye,
expansion 2 in eye, length 2 in head;
interorbital very narrow, bony, 4 in
eye; opercle with few weak radiating
striae. Gill rakers 6 + 18, lanceolate,
slender.

Scales 45 in lateral line to
caudal base; 5? above, 5? below,
23? predorsal forward to occiput.
Head apparently scaleless. Scales
very caducous, all now fallen.

D. 15, I, fin low, rays all damaged, fin origin midway between inner upper end of gill cleft and caudal base; A. 10, I, like dorsal, low and rays all broken, fin origin opposite base of twelfth dorsal ray; caudal moderate, damaged, rudimentary rays small and inconspicuous; least depth of caudal peduncle 5 in head; pectoral damaged, short, small; ventral $3\frac{1}{2}$?, origin midway between eye center and caudal base.

Head black. Iris neutral black, pupil ivory white. Inside mouth

and gill opening black. Body brown. Fins all brownish.

Diagnosis. Differs from harceus erimelas chiefly in its short maxillary reaching only center of eye, greatly shorter paired fins, of which ventral inserted before the dorsal.

Type, No.

U. S. N. M.

3841. D. 5608. Binang Unang Island (N.), N. 80° E., 21 miles (S. $00^{\circ} 11'$ E. $121^{\circ} 16'$), Gulf of Tomini, Celebes. In 1092 fathoms. November 18, 1909. Length 120 mm. Type.

Harceetes lloydi new species.

Depth $4\frac{3}{4}$?; head $3\frac{3}{5}$?, width $3\frac{1}{4}$. Snout $3\frac{2}{5}$ in head from snout tip; eye $6\frac{1}{4}$, 2 in snout, $1\frac{2}{3}$ in interorbital; maxillary reaches behind eye at least $\frac{2}{3}$ eye diameter, expansion equals eye, length $1\frac{5}{6}$ in head from snout tip; mandible slightly protrudes with slight pointed bony spur pointing forward from symphysis; teeth rather long, slender, slightly curved, in bands in jaws and inner longest; irregular row of similar teeth on each palatine and scarcely any on vomer;

238

interorbital 5, low, with broad deep groove extending on cranium to occiput; opercle with numerous feeble though distinct radiating striae. Gill rakers $5+17$, lanceolate, slightly longer than eye; gill filaments $\frac{3}{5}$ of gill rakers.

Scales 50 in lateral line to caudal base; 7 above, 7 below, 38 predorsal forward to occiput.

Lateral line complete, well marked, tubes slender and well exposed.

Scales very caducous, all fallen, and apparently not on head excepting occiput.

D. 18?, inserted midway between hind preopercle edge and caudal base; A. 12?, inserted below last third of dorsal base; caudal damaged, apparently forked, small inconspicuous rudimentary rays 16 above or below; least depth of caudal peduncle $3\frac{2}{3}$ in head; paired fins lost.

Head black. Iris neutral black, pupil brown. Body brown, scale pockets dusky to blackish brown. Inside mouth and gill opening blackish. Fins brownish.

Diagnosis. The poorly preserved

specimen representing this species belongs in *harcetes*. It differs from *harcetes erimelas* Alcock in the anal origin at least below the last third of the dorsal base.

Type no.

U.S.N.M.

8740. D. 5460. Hialat Point, Light, N. 24° E., 8.2 miles (N. $13^{\circ} 32' 30''$ E. $143^{\circ} 58' 6''$), east coast of Luzon. In 565 fathoms. June 10, 1909. Length 470? mm., broken and in poor preservation.

Type.

harcetes affinis Lloyd

harcetes affinis Lloyd, Ann. Mag. Nat.

fig. 1a (head lateral line).

Hist., series 7, vol. 18, 1906, p. 308, Gulf of Oman; Illustrat. Zool. Investigator, Fishes, pt. 9, 1908, pl. 42, figs. 1-1a; Mem. Indian Mus., vol. 2, no. 3, August 1909, p. 149 (type).

Depth $6\frac{3}{5}$; head $3\frac{2}{3}$. Snout $4\frac{1}{5}$ in head; eye $5\frac{1}{3}$, $1\frac{1}{3}$ in snout; maxillary reaches $\frac{3}{4}$ eye diameter behind eye, expansion $1\frac{2}{3}$ in eye, length $1\frac{7}{8}$ in head; interorbital low.

Scales 93 in lateral line to caudal base, close above along its course, and 4 more on caudal base; tubular scales 69 in lateral line to caudal base and 3 more on latter;

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

8 above, 7 below.

D. III, 14, first branched ray
4 in head; A. III, 11, first branched
ray $3\frac{7}{8}$; caudal $1\frac{7}{8}$?, forked;
least depth of caudal peduncle $4\frac{1}{4}$;
pectoral $3\frac{3}{5}$; ventral $3\frac{1}{2}$.

Almost black, head and lining
of gill opening jet black. Length
358 mm. (Lloyd.)

Gulf of Oman.

243

harcetes pluriserialis Garman
harcetes pluriserialis Garman, mem.

Mus. Comp. Zool., vol. 24, 1899, p. 289,
pl. 57, fig. 3. N. $5^{\circ}31'$ W. $86^{\circ}31'$, 1010
fathoms, Gulf of Panama.

Depth $6\frac{1}{8}$; head $3\frac{1}{4}$. Snout to eye
 $3\frac{1}{2}$ in head; orbit $5\frac{7}{8}$; eye 8, $2\frac{1}{5}$
in snout, $\frac{3}{5}$ of interorbital;
maxillary extends $\frac{7}{8}$ of eye behind
eye, expansion $\frac{7}{8}$ of eye, length $1\frac{7}{8}$
in head; teeth small, subconic, hooked,
incurved, unequal, bands of several
series on premaxillaries, maxillaries,

A. 27, maxillary reaches eye. niger.

a. ⁵ Conocara. Scales minute, 190 to 216 in lateral line; A. 20, inserted well behind anal origin; A. 36 or 37.

L. ¹ Lower gill rakers 17. macropterus.

L. ² Lower gill rakers 14. mcdonaldi

dentaries and palatines, outer series smallest, inner much largest and depressible; single large tooth each side of vomer; interorbital low. Gill rakers $3+13$, less half of eye.

Scales 105 in lateral line; 11 above, 9 below.

D. 19, fifth ray $6\frac{3}{4}$ in head; A. 14, eighth ray $5\frac{3}{5}$; caudal damaged, evidently forked; least depth of caudal peduncle $3\frac{3}{4}$; pectoral damaged; ventral $5\frac{1}{3}$.

Deep black over entire surface and linings of body cavity. Length 432 mm. (Garman.)
Gulf of Panama.

base. Ventral rather large.

Diagnosis. Differs largely from subgenus Asquamiceps Zugmayer chiefly in its scaly head, included mandible, longer maxillary, more advanced dorsal and anal and larger scales.

Harcetes erimelas Alcock

Harcetes erimelas Alcock, Ann. Mag. Nat. Hist., series 6, vol. 6, 1890, p. 305. About 75 miles west of Goa coast, Laccadive Sea (N. Lat. $15^{\circ} 02'$ E. Long. $72^{\circ} 34'$), in 740 fathoms; Illustrat. Zool. Investigator, Fisher, pt. 1, 1892, pl. 4, fig. 1. — Goode and Bean, Oceanic Ichthy., 1895, pp. 45, 510 (copied). — Alcock, Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, 1896, p. 335 (compiled); Cat. Deep Sea Fishes Indian Mus., 1899, p. 175 (Arabian Sea near Laccadive Islands, 740 fathoms).

Depth $5 \frac{1}{8}$; head $3 \frac{3}{4}$ Snout
3 in head; eye $5 \frac{4}{5}$, $1 \frac{9}{10}$ in snout,
less than interorbital; maxillary

746

reaches $\frac{4}{5}$ eye diameter beyond eye, expansion equals eye, length $1\frac{2}{3}$ in head; teeth small, even, uniform, acute, quadriserial anteriorly on premaxillary and dentary, triserial laterally in premaxillary and biserial on dentary, maxillary uniserial, also on palatines; 2 or 3 teeth each side of vomer; interorbital low, deeply concave. Gill rakers long as eye, close set.

Scales in lateral line 64 to caudal base and 4 more on latter; 10 above, 8 below. Scales deciduous.

247

D. III, 13, first branched ray $3\frac{7}{8}$
in head; A. 13, first branched
ray $4\frac{7}{8}$; caudal $1\frac{3}{4}$, well emarginate;
least depth of caudal peduncle $3\frac{2}{5}$;
pectoral 2; ventral 3, inserted
nearly below dorsal origin.

Head, iris, body, fins, inside
mouth and gill chamber and entire
peritoneum, deep black. Length 344
mm. (Alcock.)

Indian Ocean.

Alcockella new subgenus

Type Karcetes garmani new species

Diagnosis. Known by its advanced
vent, small anal and long pectorals.

Larsetes garmani new species

Depth $6\frac{1}{5}$; head $3\frac{3}{5}$, width $2\frac{3}{5}$.

Snout 3 in head as measured from snout tip to eye; orbit 5; eye $7\frac{3}{5}$, $2\frac{2}{5}$ in snout, $1\frac{3}{5}$ in interorbital; maxillary lost, apparently may have extended slightly behind eye, expanded terminally, length $1\frac{7}{8}$? in head; interorbital $4\frac{7}{8}$, nearly level, with low median ridge; opercle with 4 well marked radiating striae and more numerous finer radiating less developed striae; preopercle with radiating striae around bend. Gill rakers $7+21$, lanceolate, slender,

$1\frac{2}{5}$ in eye; gill filaments $\frac{3}{4}$ of gill rakers.

Scales 62 in lateral line to caudal base and 3? more on latter; 7 above, 7 below, 44 predorsal forward to occiput. Bases of vertical fins evidently scaly. Scales thin, cycloid, very caducous, most all fallen. Tubes in lateral line slender, simple, well marked, emphasized with black pigment terminally.

D. 23, II, rays all damaged, low, fin origin midway between beginning of lateral line and caudal base, fin base $1\frac{4}{5}$ in head;

257

A. 6, I, small, rays all damaged, low, fin inserted close behind hind basal end of dorsal, base length 6 in head; caudal damaged, apparently forked, 14 or 15 rudimentary caudal rays above or below, not prominent; least depth of caudal peduncle 4; pectoral 2, long, reaches close to ventral; ventral $2\frac{1}{3}$?, well advanced or fin origin much nearer snout tip than caudal base; vent well in advance of dorsal or but slightly nearer anal origin than pectoral.

Head black. Iris slate black.

Inside mouth and gill opening black.
Body brown, dusky on belly. Fins
brownish, paired ones darker.

Diagnosis. Contained chiefly in
the sub-generic distinctions.

Type no. U.S.N.M.

10100. D. 5287. Malavatuau

Island (N.), S. 84° W., 6.20 miles (N.

$13^{\circ} 53' E.$ $120^{\circ} 26' 45''$), China Sea

vicinity of southern Luzon. In 248
fathoms. July 18, 1908. Length 158 mm.

Type.

Genus Platytröctegen Lloyd

Platytröctegen Lloyd, Mem. Indian
Mus., vol. 2, no. 3, Aug. 1909, p. 145.

Type Platytröctegen minus Lloyd,
monotypic.

Body ovoid, well compressed. Head
moderate, compressed. Snout short.
Eye large, Teeth minute, in jaws
and on vomer. Left gill cover
overlaps right and with extra or
seventh small branchiostegal (6 on
right side). Scales small, smooth.
Lower ends of clavicles form together

254

single bony spine. Small tubular
papilla, with an apical pore, close
behind opercle and level with eye
center. Dorsal and anal each
with 23 rays. Pectoral rays 28.
Ventral rays 5, fin inserted
close before dorsal origin.

Closely resembles Platytristes
but differs in the presence of
ventral fins, flat cranium, smooth
scales, single clavicular spine
and longer dorsal and anal fins.

Analysis of species

a. Rouleina. Dorsal and anal origins opposite or anal origin only slightly behind dorsal origin; body scaleless.

b. Eye small, $4\frac{3}{4}$ to 6 in head.

c.¹ D. 19; A. 10.

c.² D. 20; A. 15.

harperi
squamilaterus

b.² Eye large, $3\frac{2}{5}$ to $3\frac{3}{4}$ in head; D. 15 to 21; A. 14 to 19.

d. Anal origin little behind dorsal origin; maxillary reaches beyond eye center to hind eye edge or slightly beyond.

e. Mandible protruding.

f. Eye $3\frac{2}{5}$ to $3\frac{1}{2}$ in head from

Platytröctegen mirus Lloyd

Platytröctegen mirus Lloyd, Mem.

Indian Mus., vol. 2, no. 3, Aug. 1909,
p. 145, pl. 44, figs. 1-1a. Bay of
Bengal, 500 fathoms.

Depth $2\frac{3}{4}$; head $3\frac{1}{4}$, width
 $1\frac{4}{5}$. Snout $4\frac{3}{4}$ in head from snout
tip; eye 3, greater than snout;
maxillary would reach $\frac{1}{3}$? in eye,
expansion $2\frac{1}{4}$ in eye, length $2\frac{3}{5}$
in head from snout tip; teeth minute,
uniserial, on premaxillaries, maxillaries
and dentaries; few small teeth on

vomer, none on palatines; interorbital
low, ^{nearly flat} ~~depressed~~. Gill rakers long
as gill filaments, $\frac{1}{3}$ of eye.
Scales very small, smooth.

D. 23, inserted little before
anal origin, fin height $2\frac{1}{2}$ in total
head length; A. 23, fin height 4;
caudal $1\frac{9}{10}$, deeply forked, slender
lobes pointed; least depth of caudal
peduncle $5\frac{1}{8}$; pectoral $4\frac{1}{5}$;
ventral 5.

Black. Length 130 mm. (Lloyd).
Indian Ocean.

257

Genus Platytrectes Günther

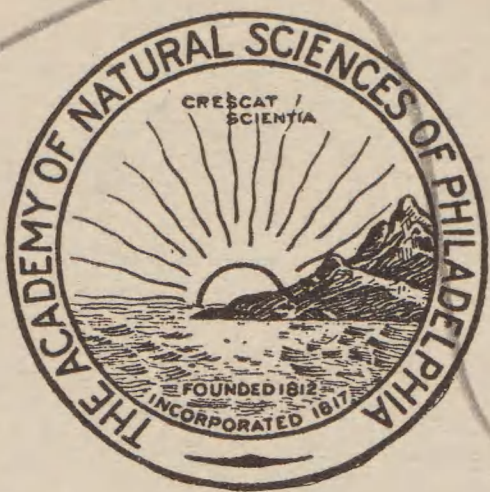
Platytrectes Günther, Ann. Mag. Nat.

Hist., series 5, vol. 2, 1878, p. 249. Type

Platytrectes apus Günther, monotypic.

Body short, elevated, compressed. Eye rather large. Mouth moderately wide. Premaxillaries, maxillaries and dentaries with uniserial small teeth. Small tooth each side of vomer. Gill opening wide. Gill rakers long, lanceolate. Branchiostegals 6. Pseudobranchiae present. Pyloric caeca rudimentary. Clavicle ends below in long, projecting, acute spine, 2 spines coalescent. Scales small, beeled. Dorsal and anal opposite, on tail, moderate. Caudal forked. Pectorals small. No ventrals.

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

258

Platytrectes apus Günther

Platytrectes apus Günther, Ann. Mag.

Nat. Hist., series 5, vol. 2, 1878, p. 249.

Mid Atlantic, in 1500 fathoms; Rep. Voy.

Challenger, vol. 22, 1887, p. 229, pl. 58, fig.

A (type). — Alcock, Ann. Mag. Nat. Hist.,

series 6, vol. 6, 1890, p. 307 (off Goa coast in

740 fathoms). — Goode and Bean, Oceanic

Ichth., 1895, p. 46 (copied). — Alcock,

Journ. Asiatic Soc. Bengal, vol. 65, pt. 2,

1896, p. 335 (compiled). Cat. Deep Sea Fishes

— Jordan and Evermann, Bull. U. S. Nat. Mus.,

no. 47, pt. 1, 1896, p. 458 (compiled). — Alcock,

740 fathoms). — Zugmayer, Rés. Camp. Sci.

Monaco, vol. 35, 1911, p. 8 (N. 37° 38' W. 10°

258

Platytrectes apus Günther

Platytrectes apus Günther, Ann. Mag. Nat. Hist., series 5, vol. 2, 1878, p. 249.

Mid Atlantic, in 1500 fathoms; Rep. Voy.

Challenger, vol. 22, 1887, p. 229, pl. 58, fig.

A (type). — Alcock, Ann. Mag. Nat. Hist., series 6, vol. 6, 1890, p. 307 (off Goa coast in

740 fathoms). — Goode and Bean, Oceanic Ichth., 1895, p. 46 (copied). — Alcock,

Journ. Asiatic Soc. Bengal, vol. 65, pt. 2,

1896, p. 335 (compiled). Cat. Deep Sea Fishes

Indian Mus., 1899, p. 177 (Arabian Sea, in

the neighbourhood of the Laccadive banks,

740 fathoms). — Zugmayer, Rés. Camp. Sci.

Monaco, vol. 35, 1911, p. 8 (N. 37° 38' W. 10°

53', 4900 meters). — Roule, Bull.
Inst. Océanogr. Monaco, no. 320, May
20, 1916, p. 12 (Canaries, 1786 meters);
Rés. Camp. Sci. Monaco, vol. 52, 1919, p.
14, pl. 1, fig. 4, a-c (1½ miles off
Hiero, Canaries, 1786 meters).

Platytrachtes procerus Brauer, Deutsch.
Tiefsee Exped. Valdivia, vol. 15, Tiefsee-
Fische, 1906, p. 23, fig. 3. N. 14° 39' 5" W.
51° 8', 2500 meters, Cape Verde Islands.

Depth $2\frac{3}{4}$; head $3\frac{2}{5}$, width $1\frac{4}{5}$.
Snout $3\frac{2}{5}$ in head from snout
tip; eye $3\frac{1}{8}$, greater than snout
or interorbital; maxillary reaches
 $\frac{1}{8}$ in eye, expansion $1\frac{7}{8}$ in eye,

length $2\frac{1}{4}$ in head; teeth uniformly minute; interorbital, concave. Gill rakers $10 + 20$, lanceolate, close set.

Scales 100 in lateral line, which straight; 17 above, 15 below.

D. 18, fin height $3\frac{1}{2}$ in total head; A. 17, fin height $3\frac{1}{2}$; caudal $1\frac{3}{4}$, well forked; least depth of caudal peduncle 3; pectoral $5\frac{1}{4}$.

Brown. Head, pectoral region, vent and fringes of caudal peduncle black. Length 140 mm. (Günther.)

Atlantic and Indian Oceans.

Genus Rouleina Jordan

Rouleina Jordan, Stanford Univ.

Public. Biol. Sci., vol. 3, no. 2, 1923, p.

122, Type Aleposomus güntheri

Alcock, orthotypic.

Body elongate, tapers backward from head. Head large, rather obtuse in front. Snout short. Eye large, advanced. Mouth large, lower jaw usually projects. Edges of jaws with

S. Lat. $26^{\circ}49'2''$ E. Long. $5^{\circ}54'$, in 4000
meters; S. Lat. $28^{\circ}28'8''$ E. Long. $6^{\circ}13'$
 $9''$, in 1200 meters. — Barnard, Ann.

South African Mus., vol. 21, pt. 1, June
1925, p. 136 (compiled).

262

with uniserial small teeth. Gill
openings wide, gill membranes
joined below, free from isthmus.
Body ~~usually~~ scaleless, ~~sometimes~~
~~with small weak scales~~. Dorsal
and anal short, subequal. Dorsal
rays 15 to 20, anal rays 14 to 19.
Paired fins usually small.

Megaleprocephalus new subgenus
Type Asquamiceps longmani new species

Body strongly compressed; ~~moderately~~
~~long and tapering back to caudal.~~
Caudal peduncle short. Head very large,
 $\frac{3}{7}$ body length to caudal base. Snout
obtuse, conic. Eye ~~moderately small,~~
~~elevated, well advanced.~~ Mouth large,
lower jaw included within upper.
Teeth only in lower jaw, very minute.
Interorbital broad, level. Preopercle
rather close behind eye and end of
maxillary. Opercle very large. Gill
opening extends forward about opposite
hind end of maxillary where membrane

263

Analysis of species

a. Bathypropteron new subgenus.
Anal origin little behind dorsal
origin; maxillary reaches beyond
eye center to hind eye edge or
slightly beyond.

b. Mandible protruding.

c.¹ Eye $3\frac{2}{5}$ to $3\frac{1}{2}$ in head from snout
tip; D. 16 or 17; A. 17 to 19; maxillary
reaches hind pupil edge to hind eye edge.
nudus

c.² Eye $3\frac{3}{4}$ in head from snout tip;
D. 18 or 19; A. 17; maxillary reaches
hind pupil edge. watasei

c.³ Eye $3\frac{1}{2}$ to 4 in head from snout
tip; D. 18 to 20; A. 15 to 18; maxillary
reaches hind eye edge or beyond.
squamilaterum

b.² Mandible included in upper jaw;
eye $3\frac{2}{3}$ in head; D. 19 to 21; A. 18 or 19.
lividus

264

a. Rouleina. Anal origin opposite dorsal origin; maxillary reaches $\frac{1}{2}$ in eye. Güntheri

Bathypnopteron new subgenus

Type leptosomus nudus Brauer.

Diagnosis. Anal origin little behind dorsal origin; Maxillary reaches beyond eye center to hind eye edge or slightly beyond.

(βαθὺς, deep; πρὸ, before;
πτερόν, fin; with reference to the advanced dorsal.)

265

Rouleina
~~Aleporomus~~ nudus (Brauer)

Aleporomus nudus Brauer, Deutsch.
Tiefsee Exped. Valdivia, vol. 15, ^{Tiefsee-}Fische,
1906, p. 22, pl. 2, fig. 2. Off Sumatra
(S. Lat. $0^{\circ} 39' 2''$ E. Long. $98^{\circ} 52' 3''$), in
750 meters. — Weber and Beaufort,
Fishes Indo Austral. Archipelago,
vol. 2, 1913, p. 105, fig. 36 (copied).

Rouleina nudus Horman, Discovery
Rep., vol. 2, 1930, p. 271 (reference).

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

Depth 5 to $5\frac{7}{8}$; head 3 to $3\frac{1}{3}$, width $2\frac{2}{5}$ to $3\frac{1}{5}$. Snout $4\frac{7}{8}$ to 5 in head from snout tip to eye; orbit $2\frac{7}{8}$ to 3; eye $3\frac{2}{5}$ to $3\frac{1}{2}$, greater than snout or interorbital; maxillary reaches opposite hind pupil edge to hind eye edge, expansion 2 to $2\frac{3}{4}$ in eye, length 2 to $2\frac{1}{5}$ in head from snout tip; mandible ends in conic symphyseal point directed upward; bony interorbital $2\frac{7}{8}$ to $3\frac{1}{2}$ in eye, concave. Gill rakers 10 + 19, lanceolate, compressed, 3 times gill filaments or $2\frac{1}{4}$ in eye.

Tubular scales 47 to 57 in

lateral line to caudal base and 7 more on latter, large, conspicuous. Scales all fallen. Skin with fine longitudinal parallel striae.

D. VI or VII, 10, I to 12, I, fourth branched ray $2\frac{1}{8}$ to $2\frac{1}{2}$ in total head length; A. III or IV, 14, I or 15, I, origin opposite base of fifth dorsal ray, first branched ray $2\frac{2}{3}$ to 3; caudal $1\frac{2}{5}$ to $1\frac{3}{4}$, well forked, lobes terminate in slender points, large rudimentary rays usually 13 above or below; also well extended forward; least depth of caudal peduncle $4\frac{2}{3}$ to 5; pectoral $2\frac{2}{3}$ to

to 4, reach half way to ventral and usually $1\frac{4}{5}$; ventral $2\frac{1}{10}$ to $2\frac{3}{5}$ in head, inserted last $\frac{2}{5}$ to $\frac{3}{5}$ in space between pectoral and anal origins, $\frac{4}{5}$ to $\frac{7}{8}$ to vent, which close before anal.

Blackish brown generally. Eye ball ivory white. Inside mouth and gill openings blackish. Fins dark brown like general body color.

East Indies, Philippines. Known by its dorsal and anal fins opposed, well developed rudimentary caudal rays, comparatively long paired fins, large eye and anteriorly directed

269

spur or spine at symphyseal tip
of lower jaw. Of all described species
it approaches closest to Rouleina
nudus (Brauer), especially in the
mandibular point, long paired fins,
maxillary, dorsal and anal rays
and rudimentary caudal rays. It
differs clearly in the larger eye,
always conspicuously larger than the
snout, more elongate and slender
body and more deeply forked
caudal. Rouleina lividus (Brauer)
is different in its deeper body and
absence of the mandibular point,
Brauer's figure of Aleposomus lividus

showing the mandible concealed in the upper jaw.

Some specimens show scattered black spots on the body, usually quite inconspicuous. Often the bases of the unpaired vertical fins are pale or livid dark gray. Frequently the upper concealed edge of the maxillary is gray to somewhat bright gray blue. Preserved specimens are often with pigment rubbed off the trunk.

D. 5467. Atulayan Island (S.), S.
79° W., 2.5 miles (N. 13° 35' 27" E. 123°
37' 18"), east coast of Luzon. In 480
fathoms. June 18, 1909. Length 123 to
205? mm. 5 examples. Poorly preserved.

2878. D. 5469. Atulayan Island
(E.), S. 63° W., 4 miles (N. 13° 36' 48" E. 123°
38' 24"). In 500 fathoms. June 18, 1909.
Length 194 mm.

3499. D. 5526. Balicasag Island (C.),
N. 15° W., 18.4 miles (N. 9° 12' 45" E. 123° 45'
30"), between Siquijor and Bohol. In
805 fathoms. August 11, 1909. Length
215 mm.

1494 to 1503, 3072 to 3076. D. 5527.
 Balicasag Island (C.), N. 14° W., 8.2
 miles (N. $9^{\circ}22'30''$ E. $123^{\circ}42'40''$). In
 392 fathoms. August 11, 1909. Length
 76? to 222 mm.

3479 and 3480. D. 5528. Balicasag
 Island (C.), N. 15° E., 5.8 miles (N. $9^{\circ}24'$
 $45''$ E. $123^{\circ}39'15''$). In 439 fathoms.
 August 11, 1909. Length 212 to 218 mm.

10155, 10224, 10225, 10259, 10277. D. 5423.
 Cagayan Island (S.), S. 11° E., 4.8 miles
 (N. $9^{\circ}38'30''$ E. $121^{\circ}11'$), Jolo Sea. In 508
 fathoms. March 31, 1909. Length 213
 to 235? mm.

10226, 10257, 10258. D. 5424.

Cagayan Island (S.), S. 11° W., 3.4 miles (N. $9^{\circ}37'5''$ E. $121^{\circ}12'37''$). In 340 fathoms. March 31, 1909. Length 210 to 230? mm.

2387. D. 5510. Camp Overton Light, S. 68° E., 9.1 miles (N. $8^{\circ}16'$ E. $124^{\circ}3'50''$), northern Mindanao and vicinity. In 423 fathoms. August 7, 1909. Length 163 mm.

D. 5511. Camp Overton Light, S. 80° E., 15.3 miles (N. $8^{\circ}15'20''$ E. $123^{\circ}57'$). In 410 fathoms. August 7, 1909. Length 122 to 212 mm. 15 examples.

1571. D. 5512. Camp Overton Light,
S. 76° E., 14 miles (N. $8^{\circ} 16' 2''$ E. $123^{\circ} 58' 26''$). In 445 fathoms. August 7, 1909.
Length 192 mm.

1578 to 1580. D. 5513. Camp Overton
Light, S. 67° E., 10.3 miles (N. $8^{\circ} 16' 45''$ E.
 $124^{\circ} 2' 48''$). In 505 fathoms. August 7,
1909. Length 105? to 196 mm.

2153. D. 5515. Camp Overton Light,
S. 26° E., 24.6 miles (N. $8^{\circ} 34' 48''$ E. $124^{\circ} 1' 24''$). August 8, 1909. Length 240 mm.

10231. D. 5654. Cape Tabako, N. 17° E.,
21.5 miles (N. $3^{\circ} 42' 5''$ S. $120^{\circ} 45' 50''$), Gulf of
Bonri, Celebes. In 805 fathoms. December 18,
1909. Length 235? mm., broken in middle.

2144. D. 5492. Dinata Point (W.),
 S. 45° W., 15.2 miles (N. $9^{\circ}12'45''$ E.
 $125^{\circ}20'$), between Leyte and Mindanao.
 In 735 fathoms. August 1, 1909. Length
 173 mm.

2908. D. 5494. Dinata Point (N.), N.
 74° W., 4.2 miles (N. $9^{\circ}6'30''$ E. $125^{\circ}18'40''$).
 In 678 fathoms. August 2, 1909. Length
 198 mm.

4465. D. 5495. Dinata Point (N.), S.
 76° E., 9.4 miles (N. $9^{\circ}6'30''$ E. $125^{\circ}00'20''$).
 In 976 fathoms. August 1, 1909. Length 145 mm.

2588. D. 5438. Hermana Mayor Light,
 S. 21° E., 7.5 miles (N. $15^{\circ}54'42''$ E. $119^{\circ}44'42''$),
 west coast of Luzon. In 297 fathoms. May
 8, 1909. Length 194? mm.

2716, 2731 to 2733, 5458, 5460,
5463, 5467, 5468. D. 5201. Limasawa
Island (E.), S. 1° E., 14.80 miles (N. $10^{\circ}10'$
E. $125^{\circ}4'15''$), Sogod Bay, southern Leyte.
In 554 fathoms. April 10, 1908. Length
176? to 270 mm.

4285. D. 5203. Limasawa Island
(S.), S. 38° W., 5.50 miles (N. $9^{\circ}58'$ E. 125°
 $7'40''$). In 775 fathoms. April 10, 1908.
Length 193 mm.

5689 and 5690. D. 5219. Inampog
Island (NE.), N. $35^{\circ}30'$ W., 12.25 miles
(N. $13^{\circ}21'$ E. $122^{\circ}18'45''$), between Marinduque
and Luzon. In 530 fathoms. April 23, 1908.
Length 250? to 255 mm.

4783. D. 5126. Hoga Island (W.),
 S. $26^{\circ}30'E$, 11.75 miles (N. $10^{\circ}34'45"E$, $121^{\circ}47'30"$), Sulu Sea vicinity of southern
 Panay. In 742 fathoms. February 3, 1908.
 Length 325 mm.

3813. D. 5646. North Island (S.), S. $68^{\circ}E$, 7.5 miles (S. $5^{\circ}31'30"E$, $122^{\circ}22'40"$),
 Buton Strait. In 456 fathoms. December
 16, 1909. Length 188 mm.

3490. D. 5647. North Island (S.), S. $87^{\circ}E$, 11.6 miles (S. $5^{\circ}34'E$, $122^{\circ}18'15"$).
 In 519 fathoms. December 16, 1909. Length 138 mm.

3487. D. 5657. Olang Point, N. $67^{\circ}W$, 14.5
 miles (S. $3^{\circ}17'40"E$, $120^{\circ}36'45"$), Gulf of Boni,
 Celebes. In 484 fathoms. December 19, 1909.
 Length 196? mm.

3059 and 3060. D. 5447. San Miguel Point, S. 7° W., 3.5 miles (N. $13^{\circ} 28' E.$, $123^{\circ} 46' 18''$), east coast of Luzon. In 310 fathoms. June 4, 1909. Length 175? to 183 mm.

9159. D. 5487. San Ricardo Point (Panaon Island), S. $50^{\circ} E.$, 11.2 miles (N. $10^{\circ} 2' 45'' E.$, $125^{\circ} 5' 33''$), between Leyte and Mindanao. In 732 fathoms. July 31, 1909. Length 258 mm.

^{1471,} ^{3192.}
^{1476,} ^{1477,} D. 5488. San Ricardo Point (Panaon Island), S. $59^{\circ} E.$, 9 miles (N. $10^{\circ} E.$, $125^{\circ} 6' 45''$). In 772 fathoms. July 31, 1909. Length 200 to 208? mm.

279

Rouleina
~~Aleposomus~~ watasei (Tanaka)

Aleposomus watasei Tanaka, Journ.

College Sci. Tokyo, vol. 27, Art. 8,
Oct. 10, 1909, p. 14. Outside Okinose,
in about 700 fathoms.

Rouleina watasei Horman, Discovery
Rep., vol. 2, 1930, p. 271 (reference).

Depth $6\frac{1}{3}$; head $4\frac{2}{3}$. Snout
 $4\frac{1}{3}$ to 6 in head; eye $3\frac{3}{4}$, greater
than interorbital; maxillary reaches
hind pupil edge; teeth very
slender, uniserial, none on palate,
or tongue; interorbital $5\frac{1}{2}$ in
head. Gill rakers $8+10$.

Body naked. Lateral line
complete, slightly decurved, extends
slightly nearer back than belly.

$d - 6\frac{1}{3}$ total $h - 4\frac{2}{3}$

$s - 6 - 4\frac{1}{3}$; $e - 33\frac{1}{4}$; $i - 5\frac{1}{2}$

gr. than i.

max. r. hind pupil edge
teeth very slender, minimal, none on palate or tongue

s. r. $81 + 10$

D_{18-19} marked before front of hind thorn in sp. between
tip & base of middle c. ray

A_{17} marked below 4 D-rays, not r. c. i
hind end both D & A on same vertical

P low, small. V origin midway between

P base & hind end of A base.

C strongly emarginate

Body naked, l. l. complete, sl. decurved, rising
sl. nearer back than belly

Jet black, fins sl. paler

Black nodules sparsely scattered throughout
body

7.265 m. (Tancha)

Here X -squamitateus Aleck
differs in smaller head, lower body
& probably little smaller eye.

PHILADELPHIA, PA.

LOGAN SQUARE



SECRETARY

JAMES A. G. REHN

OF PHILADELPHIA

THE ACADEMY OF NATURAL SCIENCES

280

D. 18 or 19, inserted before front of hind third in space between snout tip and bases of median caudal rays; A. 17, inserted below fourth dorsal ray, not reaching caudal; hind ends of dorsal and anal at same vertical; caudal strongly emarginate; pectoral rays 8, fin low, small; ventral rays 6 or 7, origin midway between pectoral base and hind end of anal base.

Jet black, fins all paler. Black nodules sparsely scattered throughout body. Length 265 mm. (Tanaka.)

Japan.

^{Rouleina}
~~Aleposomus~~ squamilaterus (Alcock) ²⁸¹

Xenodermichthys squamilaterus Alcock,
Ann. Mag. Nat. Hist., series 7, vol. 2, 1898,
p. 148. Off Andaman Islands, in 370 to
419 fathoms; Illustrat. Zool. Investigator,
pt. 6, 1899, pl. 25, fig. 4; Cat. Deep Sea
Fishes Indian Mus., 1899, p. 181 (Arabian
Sea, 370 to 419 fathoms).

Aleposomus (Rouleina) squamilaterus
McCulloch, Biolog. Res. Endeavour,
vol. 5, pt. 4, June 8, 1926, p. 163, pl. 44,
fig. 1 (Great Australian Bight,
350 to 450 fathoms).

Rouleina squamilaterus Horman, Discovery
Rep., vol. 2, 1930, p. 271 (reference).

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

282

Depth ^{$4\frac{2}{5}$ to} $5\frac{2}{3}$; head ^{$3\frac{1}{4}$ to} $3\frac{1}{2}$, width ^{$2\frac{3}{5}$ to} $2\frac{2}{3}$.
Snout ^{4 to} $5\frac{2}{3}$ in head from snout tip
to eye; orbit ^{$3\frac{2}{5}$ to} $3\frac{1}{2}$; eye ^{$4\frac{3}{5}$ to} $4\frac{3}{4}$, greatly
exceeds snout or interorbital;
maxillary reaches nearly opposite
hind eye edge, expansion ^{$1\frac{1}{3}$ to} $2\frac{3}{4}$ in eye,
length ^{$2\frac{1}{10}$ to} $2\frac{1}{5}$ in head from snout tip;
interorbital ^{$1\frac{3}{4}$ to} $2\frac{1}{4}$ in eye, ^{to $8\frac{4}{5}$} $7\frac{2}{3}$ in head
from snout tip, low, with deep median
groove. Gill rakers ^{or 9 to 20} $8_1 + 12_1$, lanceolate,
 $2\frac{1}{2}$ in eye; gill filaments $\frac{2}{5}$ of gill
rakers.

~~Scales very caducous, all fallen.~~
Lateral line distinct, axial along side
of body.

283

D. VI, 14, I, rays all broken, fin
base ^{1 1/2 to} 1 3/5 in total head length, fin
origin midway between hind gill opening
and caudal base; A. II, ^{or 14} 13, rays all
broken, fin base 2 in total head
length; caudal damaged, with 10
rudimentary rays above or below;
least depth of caudal peduncle ^{4 1/2 to} 4 3/5
in total head; pectoral 3 3/5?;
ventral 4 1/4?

Uniform blackish. Fins all paler
than body or grayish. Upper edge of
maxillary slipping under preorbital
bluish. Iris slate black, pupil
ivory-white.

Indian Ocean, Great Australian
Bight, Philippines.

10187. D. 5467. Atulayan Island
(S.), S. 79° W., 2.5 miles (N. $13^{\circ} 35'$
 $27''$ E. $123^{\circ} 37' 18''$), east coast of
Luzon. In 480 fathoms. June 18,
1909. Length 258? mm.

10186. D. 5468. Atulayan Island
(S.), S. 83° W., 5.7 miles (N. $13^{\circ} 35'$
 $39''$ E. $123^{\circ} 40' 28''$), east coast of
Luzon. June 18, 1909. Length 320
mm. In 569 fathoms.

8469. D. 5423. Cagayan Island
(S.), S. 11° E., 4.8 miles (N. $9^{\circ} 38' 30''$
E. $121^{\circ} 11'$), Jolo Sea. In 508
fathoms. March 31, 1909. Length
260? mm.

9190. D. 5494. Dinata Point (N.), N.
 74° W., 4.2 miles (N. $9^{\circ} 6' 30''$ E. $125^{\circ} 18' 40''$),
between Leyte and Mindanao. In 678 fathoms.
August 2, 1909. Length 255 mm.

(2836)

10262. D. 5606. Dodepo Island
(W.), N. 3° W., 10.8 miles (N. $0^{\circ}16'28''$
E. $121^{\circ}33'30''$), Gulf of Tomini,
Celebes. In 8340 fathoms.
November 17, 1909. Length 383? mm.

8505. D. 5429. Fondead Island
(SE.), N. 18 E., 15 miles (N. $9^{\circ}41'30''$
E. $118^{\circ}50'22''$), eastern Palawan
and vicinity. In 766 fathoms.
April 5, 1909. Head only, 87? mm. long.

5457, 5459, 5464 to 5466. D. 5201.
Limasana Island (E.), S. 1° E., 14.80
miles (N. $10^{\circ}10'$ E. $125^{\circ}4'15''$), Logod
Bay, southern Leyte. In 554
fathoms. April 10, 1908. Length
233 to 268 mm.

10289 D. 5648. North Island (S.),
N. 87° E., 10.2 miles (S. $5^{\circ}35'$ E. 122°
 $20'$), Buton Strait. In 559 fathoms.
December 16, 1909. Length 300? mm.

9172. D. 5488. San Ricardo
Point (Panaon Island), S. 59° E.,
9 miles (N. 10° E. $125^{\circ} 6' 45''$), between
Leyte and Mindanao. In 772 fathoms.
July 31, 1909. Length 285 mm.

Ophichthus pinguis Günther

Ophichthus pinguis Günther, Ann. Mag.
Nat. Hist., ser. 4, vol. 10, 1872, p. 425.
Solomon Islands; Cruise of Curacoa,
1873, p. (410) 430, pl. 35 (type); Journ.
Mus. Godeffroy, vol. 9, pt. 17, 1910, p.
399 (type).

Ophichthus pinguis Fowler, Mem.
Bishop Mus., vol. 10, 1928, p. 44 (compiled).

~~Indian Ocean, Great Australian~~
~~Bight, Philippines.~~ I place this
specimen ^{immediately above} ~~listed below~~ with Alcock's
species as it is in agreement. It differs
slightly, however, in that the lateral
line is not quite so prominent, likely
a matter of preservation. It has the
same general physiognomy with an
oblique ridge on opercle, comparatively
short paired fins and the insertion
of the fins similar.

4522. D. 5111. Sombrero Island, S. 41°
E., 4.50 miles (N. $13^{\circ}45'15''$ E. $120^{\circ}46'30''$),
China Sea off southern Luzon. In 236 fathoms.
January 16, 1908. Length 90 mm.

285

Rouleina
~~Aleposomus~~ lividus (Brauer)

Aleposomus lividus Brauer, Deutsch.
Tiefsee Exp. Valdivia, vol. 15, ^{Tiefsee-}Fische,
1906, p. 21, pl. 2, fig. 1. Off Sumatra
(S. Lat. 3° to N. Lat. 1° E. Long. 96° to 101°),
in 768 to 1143 meters. — Weber and
Beaufort, Fishes Indo Austral.

Archipelago, vol. 2, 1913, p. 104 (copied).

Rouleina lividus Horman, Discovery
Rep., vol. 2, 1930, p. 271 (reference).

Depth $4\frac{1}{3}$; head $3\frac{1}{5}$. Snout
5 in head; eye $3\frac{2}{3}$, greater than
or interorbital
snout; maxillary reaches hind
eye edge, expansion 2 in eye;
length 2 in head; ^{lower jaw included within upper;} both jaws with
small teeth, palate toothless;
interorbital low.

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

286

Whole body strewn with small black papillae. Lateral line distinct, axial, complete.

D. 19 to 21, first branched ray $2 \frac{3}{5}$ in head; A. 18 or 19, first origin opposite first fifth of dorsal base branched ray $2 \frac{3}{4}$; caudal $1 \frac{3}{5}$, well forked, with 9 prominent rudimentary rays extended well forward; least depth of caudal peduncle $3 \frac{2}{5}$; pectoral $2 \frac{1}{4}$; ventral $3 \frac{4}{5}$.

Blue black, with violet reflections, fins dark colored. Length 330 mm.
(Brauer.)

Subgenus Rouleina Jordan

287

Lutjanus roseus (not Diaope roseus -
Valenciennes 1830) Day, Fishes of India,
 pt. 1, 1875, p. 38, pl. 11, fig. 1. Madras.
 — Thurston, Notes Pearl Fisher. Manar,
 1890, p. 91 (Pamban). — Fowler, Journ.
Acad. Nat. Sci. Philadelphia, series 2,
 vol. 12, 1904, p. 525 (Padang).

Lutjanus roseus Day, Fauna British
India, Fishes, vol. 2, 1889, p. 472.

Lutjanus jahngarah Day, Fishes of India,
 pt. 1, 1875, p. 40. Seas of India.

Lutjanus jahngarah Day, Fauna British
India, Fishes, vol. 1, 1889, p. 474.

^{Rouleina}
~~Aleposoma~~ guentheri (Alcock)

288

Xenodermichthys guentheri Alcock,
Ann. Mag. Nat. Hist., series 6, vol. 10,
1892, p. 357, pl. 18, fig. 3. Bay of Bengal
(h. Lat. $15^{\circ}43'30''$ E, Long. $81^{\circ}19'30''$), in
~~Investigator, Fishes, pt. 7, 1900, pl. 32, fig. 2.~~
678 fathoms, in Illustrat. Zool.
Investigator, Fishes, pt. 7, 1900, pl. 32,

fig. 2.

Xenodermichthys guentheri Alcock, Cat.

Goode and Bean, Oceanic Ichth., 1895, p. 48
(reference). —

Rouleina guentheri Norman, Discovery
Rep., vol. 2, 1930, p. 271 (reference).

^{Rouleina}
~~Aleposoma~~ guentheri (Alcock)

288

Xenodermichthys guentheri Alcock,
Ann. Mag. Nat. Hist., series 6, vol. 10,
1892, p. 357, pl. 18, fig. 3. Bay of Bengal
(N. Lat. $15^{\circ}43'30''$ E, Long. $81^{\circ}19'30''$), in
~~Investigator Deep Sea Fishes~~ ~~678 fathoms~~ ~~Illustrat. Zool.~~
678 fathoms; Illustrat. Zool.
Investigator, Fishes, pt. 7, 1900, pl. 32,

fig. 2.

Xenodermichthys guentheri Alcock, Cat.

Deep Sea Fishes Indian Mus., 1899, p. 180
(Bay of Bengal, off Madras coast, 678 fathoms;
Arabian Sea, off Travancore coast, 430 fathoms).

Rouleina guentheri Norman, Discovery
Rep., vol. 2, 1930, p. 271 (reference).

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

289

Depth $5\frac{1}{5}$; head 3. Snout $5\frac{1}{4}$ in head from snout tip; eye $3\frac{3}{4}$, greater than snout or interorbital; maxillary reaches $\frac{1}{2}$ in eye, expansion 2 in eye, length $2\frac{2}{5}$ in head from snout tip; row of minute close set teeth on premaxillaries, maxillaries and dentaries, palate toothless; interorbital very low, $1\frac{1}{2}$ in eye. Gill rakers numerous, long, close set.

No scales or lateral line.

D. 15, fin height 5 in total head length; A. 14, origin opposite dorsal

origin, fin height $4\frac{3}{4}$; caudal
 $2\frac{4}{5}$?, small, with numerous
prominent rudimentary rays, forked;
least depth of caudal peduncle
5; pectoral very short, 2 in eye;
ventral equals eye.

Uniform jet black. Length 153
mm. (Alcock.)

Indian Ocean.

Genus Xenodermichthys Günther

Xenodermichthys Günther, Ann. Mag.

Nat. Hist., series 5, vol. 2, 1878, p. 250.

Type Xenodermichthys nodulosus

Günther, monotypic.

Aleposomus Gill, American Naturalist,
vol. 18, 1884, p. 433. Type Aleposomus
copei Gill, monotypic.

Body elongate, compressed.
Head small. Snout short. Eye
large or moderate, anterior. Mouth
moderate or small. Maxillary
reaches middle of eye. Teeth
rudimentary, on premaxillaries,
maxillaries and dentaries, none
on palate. Gill rakers rather
few. Skin rather thick, scaleless,
with numerous small nodules, mostly

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

on lower surfaces. Dorsal and anal opposite or former little advanced. Dorsal rays 27 to 34.

Anal rays 25 to 32. Caudal forked.

Paired fins moderate.

Analysis of species

a. Alepoxomus. Depth $5\frac{2}{3}$ to $5\frac{4}{5}$; head $3\frac{3}{5}$ to $4\frac{1}{3}$; no lateral line; D. 27 to 30; A. 25 to 29.

b. Eye $3\frac{1}{8}$.

b.² Eye $3\frac{3}{4}$ to 4.

copei
socialis

a.² Xenodermichthys. Depth $6\frac{3}{4}$; head $5\frac{1}{4}$; lateral line present; D. 34; A. 32.
nodulosus

f. Bathytroctes. Pectoral without long filament and caudal lobes not ending in filaments.

g. Scales large, 44 to 58; maxillary $\frac{1}{2}$ to hind eye edge.

h. Head $2\frac{3}{5}$; D. 16; A. 13. zugmayeri

h.² Head 3;

i. Lower jaw included; D. 13 or 14; A. 11 or 12.

- i. Lower jaw protruded; D. 15; A. 11. ^{alvifrons} burragei

h.³ Head $3\frac{1}{3}$ to $3\frac{3}{4}$.

j. D. 15; A. 11.

j.² D. 16; A. 16.

j.³ D. 17; A. 15.

j.⁴ D. 18; A. 18.

inspector

macrolepis

calcaratus

squamosus

g.² Scales small, 70 to 105.

k. D. 13 or 14; A. 11.

l. Scales 75; maxillary reaches $\frac{3}{4}$ in eye. grimaldii

l.² Scales 105; maxillary reaches beyond eye. melanocephalus

Xenodermichthys copei (Gill)

Aleposomus copei Gill, American Naturalist, vol. 18, 1884, p. 433. Gulf Stream.

— Goode and Bean, Oceanic Ichth., 1895, p. 47, pl. 14, fig. 51 (type from N. $37^{\circ}12'20''$ W. $69^{\circ}39'$, 2949 fathoms). — Jordan and Evermann, Bull. U. S. Nat. Mus., no. 47, pt. 1, 1896, p. 459 (compiled).

Depth $5\frac{2}{3}$; head $3\frac{3}{5}$, width $3\frac{1}{5}$.

Snout (4 in head) from snout tip to eye; orbit $2\frac{1}{4}$; eye $3\frac{1}{8}$, greater than snout or interorbital; maxillary reaches $\frac{1}{2}$ in eye, expansion $2\frac{1}{4}$ in eye, length $2\frac{2}{5}$ in head; interorbital 4 in eye, very narrow, concave; opercle

with 2 radiating keels. Gill rakers
9+19, lanceolate, $\frac{1}{2}$ of eye, 4 times
gill filaments.

No scales. Lower half of body,
including head and anal fin, with
scattered very small and rather
numerous nodules. Lateral line as
axial groove or impression along side,
complete.

D. 27, rays all low or fin height
about 3 in head; A. 25, origin slightly
behind dorsal origin, fin like dorsal,
fin height $3\frac{1}{4}$ in head; caudal
broken, apparently emarginate,
8 to 10 inconspicuous rudimentary rays

295

above or below; least depth of caudal peduncle $5\frac{1}{5}$; pectoral low, very small, broken, about long as pupil; ventral about equals eye, inserted midway between front eye edge and caudal base.

Generally blackish brown, small nodules inconspicuously black. Iris neutral black, pupil ivory white. Fins pale or whitish.

Gulf Stream.

3355 U. S. N. M. N. $37^{\circ}12'20''$ W. $69^{\circ}39'$

Albatross Station 2099. October 2, 1883.

Length 81 mm. In 2949 fathoms. Type.

Xenodermichthys socialis Vaillant

Xenodermichthys socialis Vaillant, Exped.
Travailleur et Talisman, Poiss., 1888,

p. 162, pl. 13, figs. 1a-b. Coasts of Morocco,

Loudan, Banc d'Arguin, 717 to 1350 meters.

— Collett, Rés. Camp. Sci. Monaco, vol. 10, 1896,

p. 138 (N. $38^{\circ}46'30''$ W. $30^{\circ}40'50''$, 696 meters).

— Koehler, Ann. Univ. Lyon, vol. 3, 1896, p.

520, pl. 27, fig. 11.

— Holt and Byrne, Depart. Agric. Ireland

Fisher. Sci. Investigation, no. 5, 1906, p.

48, pl. 5, fig. 2.

— Monaco, Bull. Inst. Océanogr. Monaco,

no. 45, June 1905, p. 105, fig. 13 (off Azores,
in 700 mm).

- Richard, Bull. Inst. Océanogr. Monaco,
no. 162, Feb. 1910, p. 151, fig. 108 (upper)
(Azores, 696 meters). — Roule, Bull. Mus.
Hist. Paris, no. 2, 1915, p. 42 (;
Rés. Camp. Sci. Monaco, vol. 52, 1919, p. 10,
pl. 1, fig. 5 ().
- Barnard, Ann. South African Mus., vol.
21, 1925, p. 123 (off East London, 300 to 400 fathoms).
- Horman, Discovery Rep., vol. 2, 1930, p. 270
(S. $5^{\circ}54'$ E, $11^{\circ}19'$, 150 meters).

298

Aleposomus socialis Goode and Bean,
Oceanic Ichth., 1895, p. 48, pl. 16, fig.
58 (compiled).

Aleposomus cyaneus Zugmayer, Bull. Inst.
Océanogr. Monaco, no. 288, 1914, p. 1.

Depth $5\frac{2}{3}$ to $5\frac{4}{5}$; head 4 to $4\frac{1}{3}$,
width $2\frac{1}{2}$ to 3. Snout 4 in head
measured from snout tip to eye;
orbit $2\frac{3}{5}$ to 3; eye $3\frac{3}{4}$ to 4, equals
or little greater than snout, nearly
twice interorbital; maxillary
reaches $\frac{2}{5}$ in eye, expansion 2 in eye,
length $2\frac{1}{4}$ to $2\frac{2}{5}$ in head from

snout tip; mandible protruded, with short projecting symphyseal spur; interorbital $6\frac{1}{2}$ to 8, low, broadly depressed. Gill rakers $6+17$, lanceolate, slender, compressed, $1\frac{1}{2}$ in eye; gill filaments $\frac{2}{5}$ gill rakers.

Skin smooth, with many minute scattered nodules, mostly over lower portions of head and body, also fins. Lateral line complete, axial, along side and with small weak tubes.

D. 29 or 30, fin height $2\frac{4}{5}$ to $3\frac{1}{8}$ in total head length; A. 28 or 29, fin height $2\frac{1}{2}$ to $2\frac{7}{8}$, fin origin slightly behind dorsal origin;

caudal broken, apparently forked, rudimentary rays 12 or 13 above or below, inconspicuous; least depth of caudal peduncle 4 to $4\frac{1}{3}$; pectoral broken, about equals orbit?; ventral broken, apparently little shorter than pectoral, origin little nearer mandible tip than caudal base.

Largely blackish brown. Iris neutral or slate black, pupil brownish white. Inside gill opening black. Fins pale.

Eastern Atlantic.

42096 U.S.N.M.

Museum Hist. Nat. Paris 85.187.

Length 131 mm.

42097 U.S.N.M.

Museum Hist. Nat. Paris 85.213.

Length 126 mm.

Xenodermichthys nodulosus Günther

Xenodermichthys nodulosus Günther,

Ann. Mag. Nat. Hist., series 5, vol. 2, 1878,

p. 250. Off Yeddo, Japan, in 345 fathoms;

Rep. Voy. Challenger, vol. 1, pt. 6, 1880, p.

63 (reference); vol. 22, 1887, p. 230, pl. 58,

fig. C (type). — Goode and Bean, Oceanic

Ichthy., 1895, p. 46, fig. 57 (compiled). —

Jordan and Starks, Bull. U. S. Fish Comm.,
vol. 22, 1902 (1904), p. 579 (Sagami Bay). —

Jordan and Herre, Proc. U. S. Nat. Mus.,

vol. 31, 1906, p. 642 (Sagami Bay example).

Depth $6\frac{3}{4}$; head $5\frac{1}{4}$, width $2\frac{3}{4}$.

Snout ($5\frac{2}{5}$ in head from snout tip to eye;

orbit $3\frac{1}{4}$; eye $4\frac{1}{2}$, greater than

snout or interorbital; maxillary reaches $\frac{3}{5}$ in eye, expansion $1\frac{1}{3}$, length $2\frac{7}{8}$ in head from snout tip; mandible protrudes armed with large blunt point in front; interorbital $5\frac{1}{3}$, nearly level. Gill rakers $7+19$, lanceolate, length $1\frac{2}{3}$ in eye; gill filaments $\frac{1}{2}$ of gill rakers.

Skin smooth, with very fine longitudinal striae. Along lateral line to caudal base 50 myomeres. Body with small, rounded, inconspicuous, irregular, scattered nodules. Lateral line distinct, axial along middle of side, pores not always distinct.

D. 34, fin height $2\frac{2}{5}$ in head;
A. 32, fin height $2\frac{2}{5}$; caudal
 $1\frac{3}{5}$, well forked, 17 rather conspicuous
rudimentary rays above or below;
least depth of caudal peduncle $3\frac{1}{2}$;
pectoral $1\frac{3}{4}$; ventral $2\frac{1}{4}$, inserted
nearer mandible tip than caudal base.

Body dark neutral gray to
blackish. Head largely pale gray.
Iris slate gray, pupil ivory white.
Inside mouth dusky, inside gill
opening blackish. Fins all pale or
whitish in contrast to blackish body,
even rudimentary caudal rays.

305

Japan. My example agrees with
Günther's figure, though its color
much more contrasted.

51433. U. S. N. M.

Sagami Bay, Japan. Im/20 to 265
fathoms. Albatross Collection 3697.

May 5, 1900. Length 230 mm.

Genus Leptoderma Vaillant

Leptoderma Vaillant, Exped. Sci.

Travailleur et Talisman, Poiss., 1888,

p. 165. Type Leptoderma macrops

Vaillant, monotypic.

Body elongate, slender, gradually tapering behind until filiform. Head moderate. Muzzle obtuse. Eye very large. Mouth small. A series of small teeth in both jaws, none on palate. Gill opening wide, not very high. ~~No scales.~~ Gill rakers moderate. No scales. Dorsal and anal very long, latter longer, both nearly reaching caudal. Paired fins moderate.

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

Analysis of species

a.¹ Q. 50 to 52; Q. 67 to 76. macrops

a.² Q. 66; Q. 85. affinis

Alepocephalops new subgenus
Type Bathytroctes welshi new species.

Body elongate, well compressed, tapering rather slenderly to small narrow caudal peduncle. Head large, more than 3 to caudal base. Snout conic, moderately long. Eye large, in front half of head, above or before end of maxillary. Mouth large, mandible protrudes in front with short point directed upward. Teeth in jaws small, simple, uniserial, in upper jaw on premaxillary and maxillary, smaller and less conspicuous

Leptoderma macrops Vaillant

Leptoderma macrops Vaillant, Compt.
Rend. Acad. Sci. Paris, vol. 103, 1886,
p. 1239. Talisman dredgings; Expéd. Sci.
Travailleur et Talisman, Poiss., 1888,
p. 166, pl. 13, figs. 2, a-g (coasts of Morocco,
1163 to 1235^{meters}; coasts of Soudan, 1139 meters;
Banc d'Arguin, 1495 to 2330 meters).—

Goode and Bean, Oceanic Ichth.,
1895, p. 49, pl. 15, fig. 56 (compiled).

Depth $9\frac{4}{5}$ to $11\frac{3}{4}$?; head $3\frac{3}{4}$?
to 5, width $2\frac{2}{5}$ to $2\frac{3}{4}$? Snout 3 to
 $3\frac{1}{2}$? in head to eye; orbit $2\frac{3}{4}$ to 3;
eye $3\frac{3}{5}$ to $4\frac{1}{2}$?, $1\frac{1}{5}$ to $1\frac{1}{4}$ in snout,
1 to $1\frac{3}{5}$ in interorbital; maxillary

reaches front orbital edge or $\frac{3}{4}$ to $\frac{4}{5}$ to eye, expansion $1\frac{4}{5}$ to 2 in eye, length $3\frac{1}{8}$ to $3\frac{1}{2}$ in head, interorbital $2\frac{1}{8}$ to $3\frac{1}{4}$, broad, low, depressed medially; bony interorbital $1\frac{3}{4}$ to $2\frac{1}{3}$ in eye. Gill rakers 0 + 12 to 15, lanceolate, $2\frac{1}{2}$ to 3 in eye; 2 to 3 times gill filaments.

Body with smooth fragile skin, easily torn. Lateral line axial along side of body, complete.

D. 50 to 52, fin rays low, fin height $1\frac{2}{5}$ in eye, fin origin midway between hind eye edge and caudal base; A. 67 to 76, fin height $1\frac{1}{5}$

310

in eye, fin origin at first $\frac{2}{5}$
between snout tip and caudal
base; caudal equals eye or orbit,
slender; caudal peduncle very
slender, long tail greatly tapering
to thin narrow caudal peduncle;
pectoral $2\frac{1}{3}$ to $2\frac{4}{5}$ in head; ventral
 $3\frac{1}{5}$ to $3\frac{3}{4}$, inserted slightly before
first third between snout tip and
caudal base.

Head black. Iris slate black,
pupil ivory white. Inside mouth and
gill opening blackish brown. Body
dark brown, blackish towards head
and about belly. Fins brown, vertical

312

4459. D. 5495. Linata Point
(N.), S. 76° E., 9.4 miles (N. $9^{\circ}6'30''$
E. $125^{\circ}00'20''$), between Leyte and
Mindanao. In 976 fathoms. August
2, 1909. Length 135 mm.

3556. D. 5619. March Island.
(S.), 78° E., 7 miles (N. $0^{\circ}35'$ E. $127^{\circ}14'$
 $40''$), Molucca Passage. In 435 fathoms.
November 27, 1909. Length 117 mm.

42112. U.S.N.M.

Mus. Hist. Nat. Paris (85.230). Length
152 mm. Paratype. Very poorly preserved.

2 examples U.S.N.M. N. $15^{\circ}24'40''$ W. 63°
 $31'30''$. In 683 fathoms. Albatross
Station 2117. January 27, 1884. Length
 $140?$ to $170?$ mm. 2 examples. In very
poor preservation.

ones dark.

Eastern Atlantic, Caribbean Sea,
Philippines. My Atlantic examples
are in poor preservation though establish
the presence of the species in the
Western Atlantic and Caribbean Sea.
Although dredged in 1884 they appear
to have been overlooked by Goode
and Bean.

Leptoderma affinis Alcock

Leptoderma affinis Alcock, Cat. Deep Sea Fishes Indian Mus., 1899, p. 182. Bay of Bengal, off Kistna coast, in 753 fathoms; Illustrat. Zool. Investigator, Fisher, pt. 7, 1900, pl. 32, fig. 3.

Leptoderma macrops (not Vaillant) Alcock, Ann. Mag. Nat. Hist., series 6, vol. 10, 1892, p. 361 (Bay of Bengal, in 753 fathoms). —

Goode and Bean, Oceanic Ichth., 1895, p. 49 (part). — Alcock, Journ. Asiatic Soc.

Bengal, vol. 65, pt. 2, 1896, p. 335 (off Madras coast in 753 fathoms).

Depth $7\frac{1}{3}$; head $3\frac{4}{5}$. Snout $3\frac{7}{8}$ in head from snout tip; eye 3,

greater than snout; maxillary apparently not reaching eye, expansion $2\frac{2}{5}$ in eye, length $3\frac{7}{8}$ in head from snout tip; a series of small teeth on premaxillary, none on maxillary or palate; interorbital low.

Skin naked. Lateral line row of pores from occiput to caudal.
 Fin height $5\frac{1}{2}$ in ^{total} head,
 D. 66, _^ nearly over first fifth
 in anal length; A. 85, _^ fin height $4\frac{1}{4}$ in head,
 little over eye diameter in space
 between snout tip and caudal base;
 caudal $3\frac{1}{5}$ in head, well forked,
 slender lobes sharply pointed;

~~Chauliodon sloani Schneider~~

Chauliodon sloani Schneider, Syst. Ichth.

Bloch, 1801, p. 430. Atlantic. (On

Vipera marina Catesby). Nat. Hist. Carolina

~~Ida. Bahamas~~, vol. 2, 1771, p. 119, pl. 19,

— Valenciennes, Hist. nat. Poiss., vol. 22, 1849, p. 285, pl. 647 (Vicily).

~~Goode and Bean~~ — Goode and Bean, Oceanic

Georges Bank; Old Bahama Channel,

Ichth., 1895, p. 96 (Atlantic materials). —

500 ft.; N. 130° - 390 W. 62° - 87°, 435 - 2069 ft.)

Regan, Trans. Linn. Soc. London, ser. 2, vol.

12, Zool., no. 14, 1908, p. 218 (north of

Peros Atoll to 200 fathoms).

Chauliodon sloanii Günther, Cat. Fishes

Brit. Mus., vol. 5, 1865, p. 392 (type; Messina);

Rep. Voy. Challenger, vol. 22, 1887, p. 179

(South of New Guinea; ^{800 fathoms} north of New Guinea; ^{4000 fathoms}

South of Japan; ^{565 fathoms}; mid Atlantic ^{2500 fathoms}; n.e. of Bermuda ^{2575 ft.}) — Alcock, Linn. Mag.

315
pectoral $3\frac{1}{10}$; ventral 4.

Black, purple in spirit.

Length 222 mm. (Alcock.)

snout tip; d. 16 or 17; a. 17 to 19.

mudus
f.² Eye $3\frac{3}{4}$ in head from snout
tip; d. 18 or 19; a. 17. watasei

e.² Mandible included within upper
jaw; eye $3\frac{2}{3}$ in head; d. 19 to 21;
a. 18 or 19. lividus

d.² Anal origin opposite dorsal
origin; maxillary reaches $\frac{1}{2}$ in
eye. güntheri

a.² Baja California. Anal origin
below last $\frac{2}{5}$ of dorsal base; ~~small~~ ^{large},
thin cycloid scales present.

burragei

Genus Anomalopterus Vaillant
Anomalopterus Vaillant, Compt. Rend.
Acad. Sci. Paris, vol. 103, 1886, p. 1239.

Type Anomalopterus pinguis Vaillant,
monotypic.

Body oblong, rather short. Head
very large, half of body without
caudal. Snout long. Eye very
small. Maxillary large, reaches
well beyond eye. Premaxillaries,
dentaries and palatines with teeth.
Gill opening large. No scales. Dorsal
little in advance of anal, preceded
by median predorsal adipose ridge to
occiput.

Genus Anomalopterus Vaillant

Anomalopterus Vaillant, Exped. Sci.
Travailleur et Takisiman, Piss;

Anomalopterus pinguis Vaillant

Anomalopterus pinguis Vaillant, Compt.
Rend. Acad. Sci. Paris, vol. 103, 1886,
p. 1239. Taliiman dredgings; Exped. Sci.
Travailleur et Taliiman, Poiss., 1888,
p. 160, pl. 11, figs. 4-a (off Morocco, 1400
meters). — Goode and Bean, Oceanic
Ichth., 1895, p. 49, pl. 15, fig. 54 (compiled).

Depth $3\frac{2}{3}$; head 2. Snout
 $2\frac{4}{5}$ in head; eye $1\frac{1}{2}$, 6 in snout;
maxillary reaches $1\frac{1}{2}$ eye diameters
beyond eye, expansion equals 2 eye
diameters, length $1\frac{4}{5}$ in head;
upper jaw and mandible with
small teeth and stronger ones on

318

palatines; interorbital high.

Lateral line axial, complete.

D. 17, fin height $4\frac{4}{5}$ in head; A. 14, fin height $3\frac{1}{3}$,

origin at first $\frac{2}{5}$ of dorsal base;

caudal $2\frac{1}{3}$, deeply emarginate;

least depth of caudal peduncle

$4\frac{7}{8}$; pectoral $3\frac{1}{2}$; ventral $3\frac{2}{5}$.

Bluish. Iris white. Length 60
mm. (Vaillant.)

Eastern Atlantic.

Genus Aulastomatomorpha Alcock

Aulastomatomorpha Alcock, Ann.

Mag. Nat. Hist., series 6, vol. 6, 1890, p.

307. Type Aulastomatomorpha

phospherops Alcock, monotypic.

Aulastomomorpha Alcock, Cat. Deep

Sea Fishes Indian Mus., 1899, p. 178.

Type Aulastomatomorpha phospherops

Alcock.

? Triurus Lacépède, Hist. Nat. Poiss.,

vol. 2, 1800, p. 200. Type Triurus

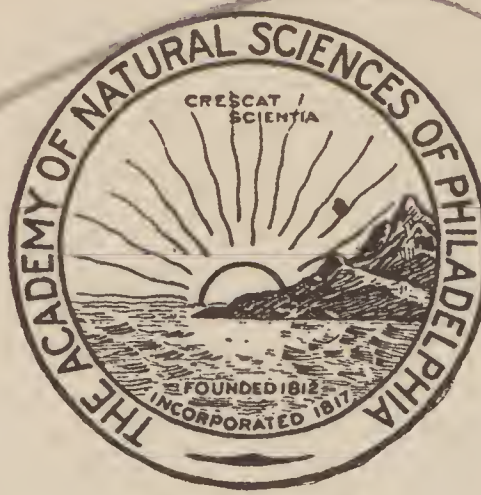
bougainvillianus Lacépède, monotypic.

? Pomatus Schneider, Syst. Ichth.

Bloch, 1801, p. 559. Type Triurus

bougainvillianus Lacépède, monotypic.

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

Body elongate, compressed, with short or little distinct caudal peduncle. Head rather long, subconic. Snout extended, tube like, Eyes large, prominent. Mouth small, terminal on tubular snout, upper jaw edge formed by premaxillary and maxillary. Teeth uniserial, in jaws only. Nostrils high, above front orbital angle. Gill opening wide below, contracted above but not extending above pectoral fin. Gill rakers well developed. Pseudo branchiae nearly rudimentary. Branchiostegals 5. Scales minute, hardly imbricate.

Doubtful

Triurus Lacépède

Triurus Lacépède, Hist. Nat. Poiss.,
vol. 2, 1800, p. 200. Type Triurus

bougainvillei^{anus} Lacépède, monotypic.

Pomatus Schneider, Syst. Ichth.

Bloch, 1801, p. 559. Type Triurus

bougainvillei^{anus} Lacépède, monotypic.

Head naked. Dorsal short,
 posterior on tail. Anal long. ^{Caudal small, forked.}

Paired fins small.

Rather small deep sea fishes of the Indian Ocean, known chiefly by their tube like snout with the small terminal mouth. Trivurus Lacépède, described with a single tooth in each jaw, though the ventrals not mentioned is likely synonymous or closely allied. Its imperfectly known genotype is known as follows:

Triurus bougainvillianus Lacépède

Triurus bougainvillianus Lacépède,

Hist. Nat. Poiss., vol. 2, 1800, pp.

200, 201. Mer du Sud (entre le 26
et le 27° S. L. 103 ou du 104° Long.).

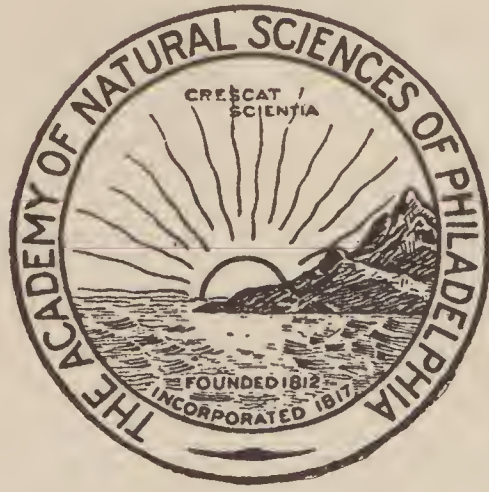
Tail compressed, much deeper than wide. Head compressed, somewhat flattened above; snout prolonged, tubular, narrow; eyes very large; mouth terminal on snout, round, perhaps not closing; at bottom of tubular mouth 2 bony jaws, each with single sharp triangular tooth, no teeth on palate or tongue. Branchiostegals 5.

Scales very small, imbedded.

D. 15, advanced $\frac{1}{3}$ of length;

A. 15; caudal very short, rays

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

about 20; pectoral small, weak,
transparent, rays 12 or 13.

Reddish brown, silvery on head,
white wine-colored on sides, lower
part of body and tail. Glittering
white blotch behind pectoral base.
Iris golden or silvery. Length
not given. (Lacépède.)

Analysis of species

a.¹ Maxillary reaches $2\frac{2}{5}$ to eye;
depth 9; D. 18.

caeruliceps

a.² Maxillary reaches $3\frac{1}{5}$ to eye;
depth $5\frac{3}{5}$; D. 21.

phospherops

325-

Aulastomatomorpha caeruleiceps Lloyd
Aulastomatomorpha caeruleiceps Lloyd,

Ann. Mag. Nat. Hist., series 7, vol. 18,
1906, p. 308. Gulf of Oman, off Muscat,
in 1005 fathoms.

Aulastomomorpha coeruleiceps Lloyd,

Illustrat. Zool. Investigator, Fishes,
pt. 9, 1908, pl. 42, fig. 3; Mem. Indian Mus.,
vol. 2, no. 3, Aug. 1909, p. 148. (Type).

Depth 9; head 3. Snout $2\frac{1}{8}$
in head; eye $4\frac{1}{3}$, 2 in snout;
maxillary reaches $2\frac{2}{5}$ to eye,
length $5\frac{1}{5}$ in head; interorbital
low.

Scales very fine.

Dorsal ¹⁸ origin over middle
of anal base, fin height $7\frac{1}{3}$

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

326

in head; ^{a. 40,} Anal base long as head,
fin height $7\frac{1}{4}$; caudal 3, deeply
emarginate; least depth of caudal
peduncle $5\frac{1}{4}$; pectoral $5\frac{2}{3}$?;
ventral 8.

Dark slaty blue on head, rest
of body brownish black. Bases of
fins with blue tinge. Length 180 mm.
(Lloyd.)

Indian Ocean.

of anal base, fin height $5\frac{7}{8}$ in
head; A. 41, fin height $4\frac{3}{4}$;
caudal $2\frac{1}{8}$, deeply forked, with $\frac{1}{4}$ to
18 rudimentary rays well advanced;
least depth of caudal peduncle
 $4\frac{1}{2}$; pectoral $3\frac{1}{6}$; ventral $4\frac{1}{3}$.

Head snow white. Iris black.

Mouth, gill chamber and peritoneum
intense black. Body chocolate.

^{blackish}
Fins, gray. Length 280 mm. (Alcock.)

Indian Ocean.

Aulastomatomorpha phospherops Alcock
Aulastomatomorpha phospherops Alcock,

Ann. Mag. Nat. Hist., series 6, vol. 6, 1890, p.

307. Off Elicapeni Bank, Laccadive Sea

(N. Lat. $11^{\circ}12'47''$ E. Long. $74^{\circ}25'30''$), in 1000

fathoms; series 6, vol. 7, 1891, p. 10, fig. 1.

Aulastomatomorpha phosphorops Alcock,

Illustrat. Zool. Investigator, Fisher, pt.

1, 1892, pl. 5, fig. 2. — Goode and Bean, Oceanic
 Ichth., 1895, pp. 50, 510 (compiled).

→ Aulastomomorpha phosphorops Alcock,

Journ. Asiatic Soc. Bengal, vol. 65, pt. 2,

1896, p. 335 (compiled); Cat. Deep. Sea

Fishes Indian Mus., 1899, p. 178 (Arabian

Sea, near the Laccadives, 1000 fathoms).

(Lloyd, Mem. Indian Mus., vol. 2, no. 3, 1909, p.
 148 (Bay of Bengal off Arabian coast, 1100 fathoms).

Depth $5\frac{3}{5}$; head 3. Snout $2\frac{1}{6}$ in head; eye $5\frac{1}{4}$, $2\frac{1}{3}$ in snout; maxillary reaches $3\frac{1}{5}$ to eye, expansion $2\frac{3}{5}$ in eye, length $6\frac{1}{5}$ in head; minute, acute, recurved uniserial teeth in premaxillaries and dentaries, no teeth on maxillary; interorbital low. Gill rakers moderately long.

Body covered with minute, hardly imbricate, cycloid scales. Lateral line axial, complete.

D. 21, origin slightly behind middle

Genus Dolichopteryx Brauer

Dolichopteryx Brauer, Sitz. Ber. Gesell.
Nat. Marburg, vol. 8, 1901, p. 127. Type
Dolichopteryx anascopa Brauer,

monotypic.

† Dolichopteryx Beebe, Zoologica New York
Zool. Soc., vol. 13, no. 4, March 1932, p. 409.
Type Dolichopteryx anascopa Brauer.

maximum 100. ...
no scales. Dorsal and anal well
posterior, near caudal, former
little advanced. Paired fins long
in young, ventral shorter and
more posterior with age. Caudal
well emarginate.

Analysis of species

a. Depth 12.

a. Depth 17.

longipes.

binocularis.

Genus Dolicopteryx Brauer

Dolicopteryx Brauer, Sitz. Ber. Gesell.
Nat. Marburg, vol. 8, 1901, p. 127. Type
Dolicopteryx anascopa Brauer,

monotypic.

Body elongate, slender, nearly
cylindrical. Head large, flattened.
Snout long. Eye rather large, ^{telescopic,} nearly
median. Mouth small terminal.
Maxillary short. Gill opening broad.
No scales. Dorsal and anal well
posterior, near caudal, former
little advanced. Paired fins long
in young, ventral shorter and
more posterior with age. Caudal
well emarginate.

Analysis of species

a. Depth 12.

a. Depth 17.

longipes.

binocularis.

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

Dolicopteryx longipes (Vaillant)

Aulostoma ? longipes Vaillant, Expéd.

Sci. Travailleur et Talisman, Poiss., 1888,

p. 340, pl. 27, fig. 4. Off Morocco, 1163

meters. — Goode and Bean, Oceanic Ichth.,
1896, p. 484, pl. 117, fig. 397 (compiled).

Dolicopteryx longipes, Horman, Discovery

Rep., vol. 2, 1930, p. 271, fig. 3 (S. $33^{\circ}50'$ to

$34^{\circ}13'$ E. $16^{\circ}4'$ to $15^{\circ}49'$, 350 to 400 meters;

N. $5^{\circ}30'30''$ W. $17^{\circ}45'$, 2500 to 2700 meters).

Holicopteryx anascopa Brauer, Sitz.
Ber. Gesell. Nat. Marburg, vol. 8, 1901,
p. 127. West of Cocos Island, Indian
Ocean (S. Lat. $10^{\circ}8'2''$ E. Long. $97^{\circ}14'9''$),
in 2400 meters; Deutsch. Tiefsee Exp.
Valdivia, vol. 15, Tiefsee-Fische, 1906,
p. 24, fig. 4 (type).

Depth $10\frac{2}{3}$; head $4\frac{1}{5}$ to $4\frac{1}{2}$.
Snout $2\frac{1}{5}$ in head measured
from snout tip to eye; orbit 3;
eye 4, $1\frac{4}{5}$ in snout; mouth cleft
3 in snout measured to orbit;
minute teeth present, at least in
upper jaw; interorbital low.

D. 15?, inserted slightly behind
ventral base, fin base $2\frac{7}{8}$ in total
head; A. 12, inserted below middle

THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA



JAMES A. G. REHN
SECRETARY

LOGAN SQUARE
PHILADELPHIA, PA.

of dorsal base, fin base $3\frac{1}{8}$;
caudal damaged, evidently deeply
emarginate, ^{rudimentary rays} 7 above and 6 below;
least depth of caudal peduncle $4\frac{3}{4}$
in total head length; pectoral rays
14, third ray widest, fin $2\frac{1}{3}$ in
body without caudal; ventral rays
12, length $3\frac{1}{5}$ in total head length.

Length 120 mm. (Norman.)

Atlantic and Indian Oceans.
Brauer's figure shows a smaller
example, only 35 mm. long, with the
ventral nearly long as pectoral and
reaching back far as end of caudal,
its origin slightly nearer pectoral
origin than caudal base.

Dolichopteryx binocularis Beebe

Dolichopteryx binocularis Beebe,

Zoologica, N. Y. Zool. Soc., vol. 13, no. 4,

March 1932, p. 49, fig. 8. Fourteen miles

southeast of Hansuch, Bermuda, 400

fathoms. — Zoologica, N. Y. Zool. Soc., vol. 16,

no. 2, Aug. 1933, p. 59, fig. 16. ~~Same specimen.~~

(Same specimen, osteology.)

Genus Unagius Jordan

Unagius Jordan, Proc. Acad. Nat. Sci. Philadelphia, 1918, p. 343. Type

Cryptophthalmus robustus Franz,

virtually, as Unagius Jordan proposed to replace Cryptophthalmus Franz.

Cryptophthalmus (not Rafinesque 1812) Franz,
^{Kon. Bayer.} Abhandl. Akad. Wiss. ~~München~~, Math.

Phys.-Kl., vol. 4, Suppl. band 1, 1910

(1911), p. 15. Type Cryptophthalmus

robustus Franz, monotypic.